



Computer Weekly

Thursday, March 1, 1984

PT7 cuts costs

FERRANTI Computer Systems

MoD gaffe lets in copying safeguard

by Philip Hunter
THE Ministry of Defence has made an embarrassing mistake by failing to notice a patent taken out early last year on a device designed to prevent tape-to-tape copying of software.

The Ministry slapped an embargo on an almost identical product patented late last year, preventing it from being sold or marketed for an indefinite period. The product which escaped the Ministry's notice was developed by Systembridge of Upminster, which claims that its device has not yet been cracked by a pirate.

Systembridge director Jack Hawkins admits that his product is in principle the same as the one recently embargoed by the Ministry of Defence. "But they are different in detail," he says.

Perhaps the detailed differences account for the one being embargoed, and the other not, suggests Hawkins.

The embargoed product was developed by JLC Data of Barnsey, which filed a patent on it late last year in the hope of cashing in on the industry's dire need for a software protection device that works. But the patent office decided to refer the product to the Ministry of Defence under Clause 22 of the 1977 Patents Act, under which information about a patent of potential threat to national security can be withheld from the public.

Lord Lloyd of Kilgerran, a patents lawyer and hon secretary of Ptocon, the Parliamentary Information Technology Committee, says the Ministry probably decided to embargo the JLC product because it was thought to enable people in some way to access classified information from a computer terminal. But if another similar product had already been patented, then the Ministry was wasting its time.

Meanwhile JLC Data's Jim Lamant, who invented the device, feels hard done by because he is barred from selling or marketing the product.



Top Sinclair men, Sir Clive and Nigel Searle look farther afield as Timex bows out.

Sinclair expands as Timex quits

by Nuala Moran and John Kavanagh
SINCLAIR Research is to look further afield for sales as its US manufacturer and distributor, watch manufacturer Timex, bows out of the home computer market. Timex was put off by last year's savage price wars, which also forced giant Texas Instruments and toy company Mattel out of the home computer business.

Announcing the decision, Timex vice-president for sales and marketing C. Jacobi says: "Analysis of the home computer market shows that 1984 will be another year of turmoil. We believe the value of inventories will decline, making it difficult to make a reasonable profit."

But Sinclair had already announced plans to "dramatically enhance" its sales outside the US and UK, which run at 60% of its total.

And a Sinclair spokeswoman says: "We understand Timex' reasons. It is a licensee of our technology, so we can't dictate how it uses it."

She adds that Sinclair has no plans to take over marketing the ZX81 or the Spectrum in the US and that this will not affect plans to market the QL in North America. Timex did not have any rights to the QL but it will continue to manufacture computers for Sinclair in the UK or its Dundee factory.

Jacobi says Timex will honour guarantees and do repairs and continue to supply parts to other companies in the industry. Demand for the QL overtook supplies only two weeks after it was launched in mid-January, Sinclair blamed a higher than expected demand for this. Would-be QL owners are now receiving let-

ters saying the promised 28-day delivery dates will not be met and the Advertising Standards Authority is already investigating complaints.

Sinclair's expansion plans include the licensing of companies in South America, Africa and Asia to build its products, which are sold through distributors in some 50 countries.

The company is now looking for two top people to develop further the markets in France and West Germany.

The spokeswoman says: "These managers will have none of the trappings of a big office. They will organise their own time to manage the strategic development of Sinclair in those countries."

Sinclair also wants an export manager to push business in the Middle East, Eastern Europe and Africa.

Taxmen vote in technology deal

by Nuala Moran
THE taxmen have voted to accept the new technology agreement thrashed out between their union executive and the Inland Revenue which promises a minimum of compulsory redundancies as a result of the computerisation of Paye.

And 400 suspended staff returned to duty on Wednesday after 66.4% of the Revenue staff voted for the agreement.

A spokesman for the taxmen's union, the Inland Revenue Staff Federation (IRSF) denied that the 30% against the agreement was higher than expected. "There was some stirring on the broad Left in favour of not signing, but the result is quite clear. Accordingly the executive committee decided that the new technology agreement should be signed."

The 400 or so staff in the West Midlands who were "temporarily relieved from duty" for refusing to operate VDUs voted 357 to 25 to accept the agreement at a secret

ballot in Wolverhampton last Friday. They returned yesterday.

Under the terms of the agreement the Revenue has agreed to spread the benefits of computerisation to the staff. A joint study as "self determination" will be set up to give staff the chance to decide on their own working patterns.

But the union also had to agree to accept 4,000 job losses as a result of the Paye computerisation before 1988. The Revenue said this will be done by a combination of "natural wastage and transfer".

This agreement will have repercussions for other Civil Service unions seeking new technology agreements. They could also be affected by a court ruling against the IRSF which could be used by the government in future disputes.

The IRSF took the Revenue to court, because it said, the use of computers without a new technology agreement broke the taxmen's terms of employment. But Mr Justice Walton said that the nature of their jobs had not been changed, only the way the jobs were done.

Court blocks Fast sub

by George Black
TOP US software house McCormack and Dodge has suffered a setback in its attempt to revive an accounting system which was hit by a court injunction.

It intended to replace the Fast report writer, the subject of the injunction, with an alternative package from Software International. But now a court in Washington has blocked this move.

The court says it will re-hear the case on April 12 and give a decision on April 10. But meanwhile McCormack and Dodge cannot

use the Software International alternative.

The case began with an injunction by the court preventing McCormack selling the report writer outside the US. Its publisher, ABC Management Systems, said it had only agreed with McCormack over US distribution rights.

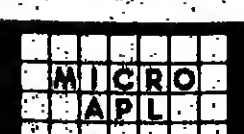
ABC says it has instructed lawyers to proceed against McCormack. Computing Services, the UK distributor of McCormack's financial systems. But last week XYZ said it had received no word from ABC.

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Computer Weekly

Thursday, March 8, 1984 Number 90 35p

British Telecom falls asleep on leap year

by Dave Madden
CHAPS, the new Clearing House Automated Payment System, failed on February 29 because British Telecom forgot that 1984 is a leap year.

The system, which came into operation amid loud controversy last month, uses British Telecom's Packet Switch Stream data communications network, PSS, to pass payment transactions between the clearing or settlement banks. The system failed because those messages emerged from PSS dated March 1.

An embarrassed spokesman for

BT confessed: "We pass timing information to CHAPS from the PSS system clock in Rugby. We thought CHAPS only interrogated us for the time of day - not the date."

BT dismissed the error as "one of those teething problems that can afflict any new system", and added, "It was quickly corrected".

Jim Reeves, assistant manager of the CHAPS project minimised the fault's significance. "BT had a problem, but the banks have procedures to handle that sort of thing and not everybody was affected," he said.

But a spokesman for Lloyds Bank said: "We effectively lost CHAPS for the whole day. We reverted to the wired payment system that we used to use."

He was at pains to point out that payments had merely been delayed, and insisted: "None of our customers were put out."

A Barclays Bank spokesman said: "The central switching did go in the morning but we have a contingency. We'd rather not say how we recovered."

Reeves made a positive virtue out of the affair: "It is very early days for the system and this might

prove to have been a useful exercise."

British Telecom's PSS network will be the basis of most of the UK's electronic funds transfer systems in the future. CHAPS uses a closed user group on the network.

British Telecom is understood to have been told to get itself "a more expensive diary" by irritated CHAPS officials, when the system failed.

Donald Kennett adds: PSS, the first of BT's X-Stream digital telecommunications services, opened in 1981 and has since grown more rapidly than originally expected. But throughout the 1970s controversy raged over the economics and practicality of both providing packet networks and using them.

Telephone companies were worried about the profitability of tele- and other data services being underwritten, banks were worried about the security of their transactions, and other users thought there could be a tricky situation involving packet networks being economic for some types of traffic but not others.

Computers brings out a Lynx

CAMBRIDGE-based micro manufacturer Computers Ltd unveiled its latest Lynx computer, the Laureate. It is aimed at the small business/hobby market and runs CPM applications software. The eight-bit machine has 64K workspace memory and 64K video memory, an eight colour screen and an expansion bus for a printer, joystick or ROM software. Price is £399.95, which puts the machine in the same bracket as Acorn's BBC micro and the Sinclair QL.

Satellite success

THE European Space Agency successfully launched the eighth satellite in the Intelsat V series on Monday. It was the ESA's sixth successful payload launch and the last before it delegates launch responsibility to ArianeSpace in May. Previous launches include the ECS-1 European communications satellite and the seventh Intelsat V. ESA will be responsible for all five of the ECS satellites, the second of which is due up in July.

Commodore signs

COMMODORE has signed an agreement with Canadian firm ByteCom covering the development, under licence, of an IBM-compatible portable computer. This would be based on technology used in ByteCom's Hyperion micro.

Hard disk

UK MICRO maker ACT is to launch a hard disk version of its Apricot business micro this week. It is also expected to announce a massive price decrease. The disc will be integral to the machine, replacing one of the 3 1/2-inch micro floppy drives, bringing another big deal to Rodime for its 3 1/2-inch Winchester.



MATHEWSON... "Probably the largest for the UK."

Greenock gets boost

NATIONAL Semiconductor is to spend £100 million on its Greenock factory to establish a world first for microprocessor manufacture and create 800 new UK jobs on top of 200 it has already created.

The company aims to be the first to mass produce its micros on six inch wafers - a technique, which will allow it to produce more chips at a cheaper cost per unit. And National Semiconductor (NatSemi) will double the size of its Greenock factory to 325,000 sq ft and allow the company to treble its current 1/2 million a year production of wafers.

John Ayres, NatSemi support services manager, says: "We are the advanced guard. Only Intel is producing six inch wafers in any real numbers and those aren't substantial." IBM produces its own for internal use and semiconductor maker Motorola is widely tipped to start a similar production facility in East Kilbride.

Dr George Mathewson, chief executive of the Scottish Development Agency (SDA), says: "We believe that this is the largest inward investment ever in Scotland for a single project, and that it is probably the largest for the UK."

NatSemi is to get a government financial package but officials of the SDA and of company refused to put a total figure to government assistance.



McHugh diversifies his future



OEMs: a guide through the labyrinth



How computers helped Hart to win

producing six inch wafers in any real numbers and those aren't substantial." IBM produces its own for internal use and semiconductor maker Motorola is widely tipped to start a similar production facility in East Kilbride.

The conclusions of the survey, which is published by the Policy Studies Institute (PSI) are in line with the "people crisis" being experienced in other segments of the industry.

Last week at the Computing Services Association annual meeting in Bournemouth concern was expressed at the difficulty in recruiting trained staff for key roles in small to medium sized software companies (see page 2).

The survey finds that the UK has made more progress than expected in the application of microelectronics to its products and processes in the last two years. But we are still pretty much on the starting blocks, according to Jim Northcott, co-author of the survey.

His view is based on a nationwide survey in 1983 of 1,200 factories by the PSI which showed that nearly half the factories in the UK are using, or planning to use, microelectronics in their products or in their production processes. This is an increase of 20% compared with two years ago.

Only one factory in 10 is using microelectronics in its products, whereas more than four factories in 10 use them in processes. But Northcott says a lot of these users are relatively unsophisticated.

"Many people are using micros in process applications because they just happen to have bought machines with micros in them - they don't really know anything about the technology."

Altogether microelectronics are used in 7% of the total output of manufactured products and to control about 18% of processes. The lead in using microelectronics

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CDC shuts mainframe Plato to favour micros

by John Kavanagh
US manufacturer Control Data (CDC) is closing its mainframe Plato training system service to the UK to concentrate on microcomputer-based Plato packages.

A Cyber 720 mainframe serving users across Europe is going back to the US and users are expected to be on microcomputers from UK firm Systime, which Control Data partly owns, by the summer.

All staff have been offered jobs in the company. "We owe better Plato products to the form of stand-alone systems," says sales manager Peter Furness.

"In addition this is in line with the way the bureau business is going. And European companies are more receptive than the US to the idea of distributed computing through micros."

Furness says the mainframe ser-

vice will continue in the US, where communications costs are cheaper. Some UK customers will be linked to the US until the summer, when all the mainframe facilities become available on microcomputers.

One Plato staff member says there are 10 mainframe users in the UK.

Furness says there are more, although most have been moving to microcomputers anyway.

UK revenues from Plato grew 50% last year and will grow by another 50% in 1984, Furness says.

"We are exceeding our targets," he claims.

"There's now a general awareness of computer-based training in the UK, and people are moving out of the pilot project stage," Furness asserts.

Peripheral sales give IBM a 90% boost

by Keith Holder
IBM peripherals sales leapt nearly 90% last year, while office systems climbed a respectable 60%.

These figures come from the company's report for 1983, which breaks down last year's \$40.2 billion turnover.

Peripheral sales, reckoned to have been boosted by the success of the 3380 high-capacity disc drive, for which no real competition exists yet, were the largest single contributor, totalling \$10.74 billion.

Office systems, which include workstations and the IBM-PC and PC XT, made \$8.03 billion while processors occupied second place with sales of \$10.74 billion. The latter showed only a 5.8% increase over the year.

Not everything was so rosy for IBM, however, and revenue from rentals showed a marked decrease. This was most severe in the

processors market, dropping 28.4%, and accounts for the poor increase in this sector.

Records of peripherals were hit too, with revenues down 11% to \$4.78 billion.

The US rental pool showed less shrinkage than elsewhere, on average down 13.5%.

Other categories which showed gains were program products, up almost 36%, and federal systems operations, which operate only in the US.

This is the first time IBM has given such a detailed breakdown on industry sectors because, says a spokesman, "such data was not required before."

Training, testing and "other business" stayed at the same rate as the previous year, and not largely confined to the US.

Other facts brought out in the report include a 1.3% gain in the number of employees.

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A SPECIAL Computer Weekly prize is being awarded to the best entry to the Microquest competition. Microquest, which is sponsored by Williams and Glyn's bank in association with the Department of Trade and Industry's Microelectronics Application Project (MAP), is a scheme to find innovative ideas from young people for using microelectronics in industry. Full details on page 15.

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Mathematica forges micro link

FOURTH generation software specialist Mathematica last week pushed into the mainstream micro link market with its Ramlink - but the company doesn't expect to make a fortune directly from the product.

Richard Cobb, Mathematica Products Group president, says: "The personal computer element is only \$185 a copy so it will not have a big impact on our volume. You have to sell an awful lot of those to make a million."

"But because it gives the users what they want we expect it to bring a substantial increase to sales of Ramlink II," Cobb says.

Ramlink II is a fourth generation language and database management system with 1,100 users worldwide and is the main product of the \$30 million a year plus group.

It was the pioneer of the non-procedural languages, those computer languages which do not re-

quire rigidly formatted coding and commands.

And Mathematica expects to make a string of new products announcements this year. Cobb says: "Last year we launched 12 new products."

"In 1984 we will be launching 14."

Ramlink is a software product for the IBM-PC and XT marketplace and provides facilities for bi-directional data transfer between mainframes and micros without the need for protocol conversion hardware.

The system has a mainframe and a micro element with the software for the mainframe costing between \$4,500 and \$9,000.

The price is dependant on the performance rating of the mainframe.

It can access data stored on Ramlink II, VSAM, ISAM or sequential files and IMS, DL/I, IDMS of the IBM supplied systems and

Total and Adabas database systems.

And Ramlink will automatically reformat between a series of popular personal computer software tools from various sources, including Lotus 1-2-3, the top selling VisiCalc and the ITSoftware Company's series.

It supports keyboard or mouse control.

Cobb sees Mathematica, which was taken over last year by US aerospace giant Martin Marietta, making significant improvements to Ramlink II this year.

He explains: "For big heavy on-line production jobs - where you have 1,000 terminals updating the database simultaneously - our database was not as good as it should have been."

"We have the software for that now and it will be delivered in the autumn."

"We just have the packaging and some other parts left to do first."



COBB... "In 1984 we will be launching 14 products."

Northern Telecom unveils Vienna

NORTHERN Telecom Systems this week launched a new family of computer and information systems for the European market.

The Vienna family is based around a choice of three data processing units and includes a range of intelligent terminals and other peripherals which are linked by local and wide area networks. Prices start at \$5,000 for a multi-function terminal.

Vienna incorporates MS-DOS and Xenix operating systems and supports the international standards organisation X.25 and SNA communications. Communications links are based on the Ethernet local area network.

A new processing unit enables users to access Vienna functions.

Barry Barnes, vice-president Europe, says: "The Vienna family is an international product designed to meet the varying and stringent technical, language and ergonomic requirements of the European market."

Rediffusion looks for UK partners

by John Kavanagh
REDIFFUSION Computers has seized on a National Economic Development Office (NEDO) report, calling for a united front by UK office equipment firms against foreign multi-nationals, as its way ahead.

The company is looking for trading and research and development partners - but insists it is not looking for buyers, contrary to speculation after six months of poor trading in the middle of last year.

The NEDO report, published last month, says a consolidated UK response to foreign competition is urgently needed. It shows the UK market for office systems was worth £100 million in 1982 - and UK firms met less than a third of the demand.

"We're not talking to anyone yet, but we've only just started," says Mike Aldrich, chief executive of Rediffusion Computers.

"This plan will strengthen the company in its existing markets and provide for better exploitation of new opportunities."

Aldrich laughs off reports in other journals that BET, the company's parent, is talking to Nixdorf and Control Data about selling Rediffusion Computers. These rumoured prospective buyers also deny any interest in the company.

One report refers to "BET chairman John Spencer Wills". Sir John retired two years ago and is in his 80s.

BET itself put out a statement last Friday denying the reports. Aldrich says his firm had six months of poor trading after 14 years of profits. "There was no specific reason," he says. "There were no lay-offs and we're now doing very nicely."

Viewdata is "going great", he asserts. Rediffusion Computers is the leader in the market, he says, which is growing at 40% a year in the UK.

One "minor worry" is the new, hard US attitude to selling equipment to communist countries. Rediffusion Computers does a third of its business overseas - and most of that in Eastern Europe.



ALDRICH... "We've only just started."

DHSS list narrows to four

by Nuala Moran
COMPUTERISATION of social security offices came a step nearer last week when the Department of Health and Social Security announced a shortlist of four micro suppliers who "might" be invited to tender.

The four are: British Olivetti; BT Merlin in association with Logica VTS; Gresham Lion Electronics in association with Casu Electronics; and Systime Computers. They will "be considered further for the supply of microcomputers for the department's local offices."

The DHSS plans to introduce about 2,700 micro systems into over 500 local offices over a one-month period in 1985. This is part of the department's 20 year, £700 million operational strategy to computerise the whole of the social security system.

The shortlist announced last week is part of the Local Office Microcomputer Project (Lomp). A DHSS spokesman says: "The purpose of Lomp is to help local office staff with supplementary benefit assessment."

"Eligibility for supplementary benefit is means tested and there are many criteria. At the moment this all has to be worked out by pen and paper. The systems will also be used for more routine administrative tasks."

The shortlisted suppliers will help in developing Lomp. "They will be working with us in greater detail, but it doesn't mean they will all end up supplying," says the spokesman.

He also confirms that a proposal to have three area computer centres serving the whole country has gone to ministers for consideration. Originally seven centres were planned, one in each DHSS region.

The spokesman explains: "Continuing investigations have gone on since the operational strategy was published and the conclusion is that we need three centres." He adds: "We're not quite at the stage of talking to the computer industry, but we will be talking very much more about positive results towards the end of this year with implementation starting early in 1986."

McDonnell revives its Tymshare plans

by Dave Madden

McDONNELL DOUGLAS, the US aerospace and defence group, has revived its plans to buy Tymshare, the Californian data transmission company. McDonnell has offered to pay \$25 cash per share, which means about \$307.5 million for shares tendered.

Two months ago, the two companies cancelled an earlier agreement in which McDonnell would have paid nearer \$372 million. That deal, first mooted last November, fell through after McDonnell attempted to negotiate a lower price following a decline on Wall Street suggesting it was paying too much.

Since then, Tymshare has reported a loss of \$1.6 million for fiscal 1983. The company may have been forced back to McDonnell because other suitors, thought to have included Honeywell, did not come up with a satisfactory offer.

This time the mechanics of the agreement also grant McDonnell an option to purchase 2.3 million missed Tymshare shares at \$25 each. McDonnell will buy all shares tendered if at least 90% of Tymshare's outstanding shares are tendered. If between 40% and 90% is tendered McDonnell will acquire a 49% stake.

The main attraction of the merger for McDonnell is Tymshare's Tymnet data communications service, which it intends to integrate into its information systems business. At the moment, that consists of McDonnell Douglas Automation Company, or McAuto, and Microdata. The resulting division would have combined revenues of some \$1 billion.

Telenet represents about 75% of Tymshare's business. The company's loss in 1983 compared with profits of \$8.8 million in 1982, while revenues slipped by 3% to \$288.6 million. Tymshare has reported losses in four of its last five quarters.

Earlier this year, McDonnell acquired Computer Sharing Services, a subsidiary of Rio Grande Industries in Denver, which offers computer services to telecommunications companies.

There is still some scepticism on Wall Street that the deal, described by John McDonnell and Thomas O'Rourke, presidents of McDonnell Douglas and Tymshare respectively, as a "definitive agreement", will stand up. They see it having negative implications on McDonnell's earnings in the short term. But unlike the earlier agreement, Tymshare's shareholders will decide this time.

Lotus sets up European arm

by Claire Goodling

LOTUS, star of the US microsoftware market, is about to put real muscle behind its European operation - but not for its famous 1-2-3 decision support package.

Lotus is setting up a European Product Development Group to adapt its new database, word processing and communications Symphony for European users.

Lotus has already recruited people to translate and adapt the documentation, and last week advertised four top jobs in software development and marketing.

"We're setting up in Europe for two reasons," explains the manager of International Product Development, Stephen Turner. "First we feel it is necessary to produce versions of Symphony in European languages and secondly there may be machines which are more popular in Europe than they are in the US and really need support and implementation here."

The Product Development Group is starting with French and

German versions of Symphony as its first projects, and will be installing a Vax machine dedicated to communications with the US parent.

Symphony was launched in the US in February, but is not expected in the UK until the second half of the year. Like the 1-2-3 package which made Lotus's name, Symphony is aimed primarily at the IBM-PC market, but unlike 1-2-3, it will be made available on other systems and in other languages as fast as possible.

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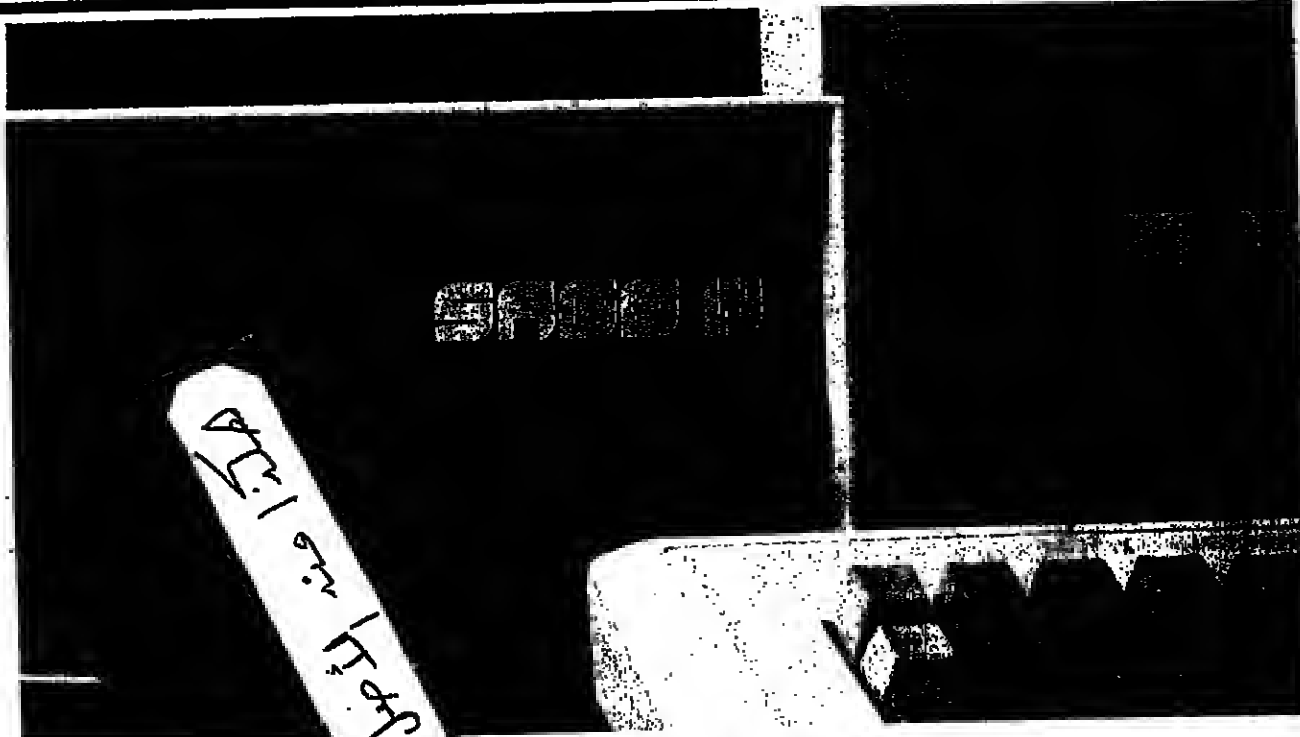
Businessman Smith wants a microcomputer system for his smallish but buoyant company. He buys a typical Personal Computer to start things off. It costs him about £3000.

Businessman Brown, with a similar problem and a prudent eye on the future, opts for the SAGE. It costs him £5500, but it does have 4 times the capacity and can handle up to 6 users.

In no time, Smith's staff have taken to computing and want a second machine - another £3000.

Brown too organises a 2nd workstation - he only pays £595 for an additional screen and keyboard.

Both bosses are asked to supply printers. Smith has to buy two for his PC's. Brown only needs one because his SAGE was designed for sharing.



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Business is good for both companies, but whilst Brown's bill for a 6 user system is £11,000, poor Mr. Smith has forked out just over £21,000.

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THE COMPANY COMPUTER

Reader Enquiry No. 18

NatSemi aims for PoS top spot

by Dave Madden
NATIONAL Semiconductor Datasheet/DTS will become the world's leading supplier of point-of-sale scanning systems this year. That is the aggressive prediction of UK managing director Gordon Ambidge.

The company was formed just a year ago, following the takeover in the US of Data Terminal Systems by National Semiconductor. Ambidge says that Datasheet has made a "huge investment" and is in a very strong position in the point-of-sale market. He expects the company to win 50% of worldwide scanning systems sales in 1984, and 30% of the general

user concurrent C/P/M. ICL's own direct salesforce will sell the PC to large accounts. That marks a move from its PC marketing strategy to date, where PC sales have been handled through third parties under ICL's Traderpoint scheme, which has over 500 outlets worldwide.

So far, at least two software companies have announced packages for the 16-bit PC. Systems Union has launched an accounting package and Solitaire-KPG is to supply a solicitor's package.

Other software houses have similar plans in the pipeline, including, for example, Microm Computers and Bits Systems, which both produce travel agents' packages.

The Rair Business Computer on which ICL's PC is based, and which has already been available for a year, has dual 16-bit 8088 and for a year, has dual 16-bit 8088 and eight-bit 8085 processors offering C/P/M-80, C/P/M-86, M/P/M-86 and MS-DOS, and the basic price for the basic 256 Kbytes RAM, one Mbyte floppy disc drive and 19 Mbyte hard disc is around £5,200. See Software File, page 11.



AMBIDGE... "Explode."

retail point-of-sale (PoS) market. Ambidge estimated that the latter market is worth around £20 million in the UK, and says: "It is not to explode and will be well over £100 million by 1987."

Intel falls behind in 32-bit race

by Keith Holder

INTEL is falling behind in the 32-bit microprocessor race. The US semiconductor manufacturer says that its true 32-bit iAPX 386 processor will not arrive until mid-1985, despite earlier predictions that the device would be available at the end of this year.

This gives competitors, particularly its US rival, National Semiconductor, a substantial lead. National promises customers that they will have the 32-bit 32032 chip in June this year, and versions with boosted performance are promised for next year.

And Motorola is running close behind. It expects to start shipments of its 68020 chip, the 32-bit member of the 68000 family, by the third quarter this year.

A spokesman for Intel denies any production delays or technical difficulty with the 386 chip, and says that the company will not suffer by being last. "We have an established customer base which is quite happy to receive deliveries next year," he claims.

Haas Rohrer, National Semiconductor's European product marketing director for microsystems, disagrees, and doubts that Intel will actually deliver its processor before the end of 1985, or even early 1986.

"It has already got problems with the 286 processor," he says, "and is diverting resources to correct this."

This 286 is Intel's virtual memory 16-bit processor, compatible with the high selling 8086 and 8088 but running at much higher speeds.

Rohrer says that this planned compatibility is at the heart of Intel's current problems with the 286 and could slow down the 386 development considerably.

He is also sceptical about Motorola's ability to deliver its 32-bit contender on time, saying: "We do not know of anyone who has actually seen silicon from Motorola. It is using new technology and it is unrealistic to expect such a complex part to be produced with no problems."

He concedes that on paper the Motorola device looks "a really nice part".

National will not stand still, he asserts, and will capitalise on the lead gained in this area. It plans to implement its first modification to its 32032 by mid-year.

Called the 32032B, it will have its speed boosted to 12MHz by shrinking the component parts, which, together with modifications to the architecture and interfaces, will boost performance by some 40%, says Rohrer. A further refinement, the 32032C, should give a ten-fold performance increase over the original processors by the end of 1985.



GEISLER... Held off until Sphinx was ready.

Sphinx opens in Silicon Valley

by Dave Madden

SPHINX, the Unix systems distributor formed in Maidenhead less than a year ago, is to open an office in Silicon Valley.

The operation will be funded by a \$200,000 investment from San Francisco venture capitalists fund, New Enterprise Associates.

Sphinx's founder, Dr Pamiela Geisler, says that her US suppliers, including Yates Ventures, Bridge Communications, Olympia Software, and prospective customers have all encouraged Sphinx to make the move. The office will provide a West Coast outlet for Sphinx's UK suppliers too.

New Enterprise Associates is one of the major US venture funds with assets of over \$100 million. Its high-tech investments include portable computer maker Gavilan and 3 COM. This is the first time that it has put cash into a UK company.

In December, Sphinx landed a £1 million second round of funding from the Olivetti venture capital fund and its two original investors, Abingworth and Alex Patrick's Peter Englander says that this new injection should be considered as part of the same round.

Geisler says that New Enterprise had wanted to come in at that stage to fund a US operation, but she had held the company off until she considered Sphinx was ready.

Geisler comments that both Sphinx's sales and profits are on target, and that her investors are suitably happy. But she concedes that the company's progress has proved slower than she had anticipated a year ago.

"No one disputes that the market for Unix products is there, but it is creeping along slowly in the UK, partly because hardware for Unix is not shipping in vast quantities. We've been flooded with prospects, but the large buyers haven't really bitten yet," she says.

She adds that much of Sphinx's revenue so far has come from consultancy work.

Honeywell boosts French videotex

by Jack Gee

THE French videotex industry has secured a major success in the US with an order by Honeywell Information Systems for an initial delivery of 2,500 Minitel. Minitel is a low-cost, user-friendly terminal already widely used in France.

Telie Alcatel, a big supplier to the French market, won the contract.

Honeywell has also signed up with France's Groupe Francais D'Informatique to buy a French videotex software package called Telesource. Honeywell will supply and maintain this product in the US.

Announcing the new orders, Roy Bright, managing director of Intelmatique, the marketing arm of the French telecommunications authority, said: "These products have been developed from France's own national videotex programme, Teletel. Now they are available to any American business which wants to set up and operate its own in-house videotex systems."

"This sale is particularly significant, because it arrived at the height of the ballyhoo in the US over the much costlier and more sophisticated approach to videotex graphics, which is being promoted by American advertising agencies."

The head of French Telecom's marketing subsidiary says the deal with Honeywell shows American business users that they do not have to pay a high price for the type of videotex they require and need not buy a costly, intricate system.

Intelmatique conducted the negotiations which brought Honeywell together with Telie Alcatel and Groupe Francais D'Informatique.

Combining French Teletel software and its own DPS-6 minicomputer, Honeywell is already running a videotex support centre at Schiller Park near Chicago's O'Hare Airport.

PRINCIPLE:
Often, the smallest things known to Man can release power of unparalleled potential.

MICRO NEWS

HOLWAY... "This move will not be overlooked."

IBM cuts cost of PC by a fifth

by Keith Holder

IBM is cutting the cost of its highly successful Personal Computer by a fifth, and reducing the price of the hard disc PC XT model by 7%.

An IBM spokesman says that the exact reductions of individual components will vary. Monochrome screens, for example, will drop 25%, while keyboards will come down 5%.

The reason for the cuts, he says, is that European manufacturing costs have come down following the start of PC production at the plant in Greenock, Scotland.

PC production started there in June last year, followed by the PC XT in December. Another dedicated PC line also came online recently.

The price cuts will apply directly to IBM's customers and retail centres, but dealers will have to decide how much to pass on to their customers.

The cuts come into effect immediately and will affect the whole of Europe, though not the US.

Richard Holway, group marketing director for Hoskyns, one of the largest IBM-PC dealers, says that, in common with all other dealers, his company will have to match the IBM retail centres prices.

He describes the move by IBM as "a brilliant piece of marketing strategy" and adds: "There will be a number of major personal computer manufacturers that will be very concerned by this announcement."

Holway says that IBM has a 30% share of the business micro market and can only improve its position. He sees the company's ability to deliver in volume as crucial in putting pressure on other manufacturers.

Lecturers succeed with Unix station

by John Riley

BUSINESS is stepping up for three Essex University computer science lecturers, who quit their jobs to set up Unixix, a company to market their own Unix workstation.

So far the company has sold 15 Motorola 68000-based Unix workstations, which are aimed at the technical market area, and is on target for 50 machines this year.

"Our plans are modest," says managing director Mike Jones, "and we are confident that we will meet our target of shipping 50 units. We are aiming at higher education and research sections of large organisations, and not trying to sell to end business users."

Jones, chairman Adrian Wheel, and technical manager Martin Colley, spent 12 months evaluating Unix machines suitable for the university's needs and decided they could do better themselves.

"We decided to develop a new product because we wanted low cost, and we also like the idea of basing it on the S100 bus structure to give it expandability," says Jones.

The S100 gives it compatibility with small bus structured microcomputers using the CP/M operating system.

Unixix uses the Unisoft System 3 version of Unix. A "sensible" configuration of 512 Kbytes of main memory, 10 Mbytes Winchester disc drive and Unix licence costs £5,000-£5,500.

High speed memory chips are launched

by Keith Holder

HIGH speed memory chips using conventional NMOS technology have been announced by IBM and US chip maker Mostek.

Both companies presented their devices at this year's International Solid State Circuits Conference, held in San Francisco at the end of last month.

The 256Kbit Mostek chip is organised in the "industry standard" 256x1 configuration. It follows last year's release of a 32K by eight bit configured 256K device.

Access speed for the new chip is 59 nanoseconds, a two-fold improvement over the earlier device, which is already being marketed by the company. Samples of the new chip are due at the end of next month.

IBM's chip is a 64K-bit device, which works at speeds between 16 and 20 nanoseconds, at least three times faster than most other 64K memories, says a spokesman.

The improvements are attributed to new design features, including a self-timed sensing circuit and improved access buffer. The number of clocks has also been reduced.

It uses four devices per memory cell, which makes it bigger than most conventional 64K chips. But a spokesman says that the size will not be a penalty, as the chip can discharge information in 16-bit blocks. Moreover, as many computers use words of 16 or 32 bits, fewer chips will be needed to achieve the same word size, according to the spokesman.

£265,000 buys failed Digico

by John Riley

FAILED British minicomputer manufacturer Digico was bought for £265,000 last Friday by Centreway, a £5 million public conglomerate. Centreway has transferred its computer division into Digico to set up a new top tier of management for the company.

Former Burroughs manager Ian Lenagan has taken over as managing director. He will keep Digico's current range which includes its 16-bit 7800 M minicomputer and its Prince micro, and in April will add a 68000-board Unix micro developed by Centreway subsidiary, Hawk Microcomputers.

Another Centreway subsidiary, Past Software Products, will provide software for the new Digico.

The purchase agreement signed between Centreway and the receiver, Post, Marwick, Mitchell, guarantees retention of the 35 staff at Leeds.

But some of the eight Digico staff at Stevenage sacked by the receiver last week are considering taking the company's new owner to an industrial tribunal. One suggestion is that the sale was agreed before the sackings but only announced later, in which case Centreway could be liable.

Opinion had been tipped to take over Digico, but managing director Mike Burden says he did not raise his bid when Centreway appeared.

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COMPANY NEWS

United sets up a German offshoot

UNITED LEASING, the quoted IBM equipment leasing specialist, has formed a German subsidiary.

United has been trading on the London stock exchange for some seven years. The group moved into the US two years ago, and is now doing \$100 million annually.

United says the German company United Leasing GmbH, has a close working relationship with IBM Leasing, a division of First National Bank of Boston. The operation already boasts leases on IBM 3380 disc systems, and two 3081 Model K processors.

Perry Mitchell, United's chairman, says: "We're totally committed to expanding our opportunities in a very high and competitive market."

United has also set up an international brokerage division through its UK subsidiary, United Computers Limited. The division will provide a channel for re-marketing surplus equipment, and will buy kit not available from the group's existing portfolio.

United was the first independent computer leasing company to obtain a full listing on the London Stock Exchange in June 1983. It is forecasting profits of £3 million for the year ending March 31.

Mitchell predicts that the Chan-



MITCHELL... "Committed to expansion."

cellor of the Exchange's Budget next week will bring changes to leasing regulations. "For the last six months there has been hot gossip that the Chancellor will have a go at the banks. There is a possibility he will do something about capital allowances, and lowering of corporation tax could diminish the competitiveness of leasing."

But he expects this to have more effect on leasing companies associated with the clearing banks.

United's main rival, Atlantic

Bleasdale is out to raise £600,000

BLEASDALE Computer Systems is set to raise £600,000 on the London Over-The-Counter market. Licensed OTG dealer Harvard Securities is offering 2.4 million shares in the company at 25 pence.

The company was founded in 1975 by its current chairman and managing director Eddie Bleasdale. Originally it was a microcomputer consultancy, but in 1981 Bleasdale was one of the first UK companies to jump on to the Unix bandwagon with a 68000-processor based machine.

Bleasdale says that because the nature of his company has changed so dramatically since 1981 he had not considered applying for an Unlisted Securities Market listing because it would have been unlikely to qualify under the Stock Exchange's three-year trading requirement.

In 1983 the company managed pre-tax profits of just £18,000 on turnover of £557,000. Bleasdale explains that the company was still in a "development phase". He expects to sell a minimum of 170 systems this year, and has forecast

£300,000 pre-tax in the year to November 30, 1984. That would put the company on a price-earnings multiple of 9.5, given an effective tax charge of 35%.

The cash would go towards funding growth and extending the company's marketing operation. "We are looking for experienced systems integrators who can match our products to their customers."

While sales efforts have concentrated so far on traditional Unix users, such as the universities, development of commercial applications software for the operating system will help it move into professional sectors.

Bleasdale would not be drawn on the prospect of acquisition. "We are not talking about that," he said, but confessed he would be interested if the right opportunity came along.

The offer for sale should be well subscribed, if for no other reason than that it will be one of the last opportunities to invest in a company which qualifies under the Business Expansion Scheme in the current tax year.

Leasing leaps to £702 million

TOTAL value of computer leasing equipment leased in the UK by members of the Equipment Leasing Association rose by 40% last year to £702 million, the £477 million in 1982.

The computer and office equipment category accounted for 28% of the ELA's overall business worth £2,894 million, in 1983. It moves past ships, aircraft and exploration equipment as the second biggest category behind industrial plant and machinery.

"It would be a bit much to expect the computer category to continue to grow at this rate," says Tony Mitchener, ELA chairman. He expects that increasing value of the leasing business in 1984 will be cancelled out by decreasing cost of hardware. But the value of processing equipment leased is expected to increase further, while the value of mainframe computers leased will continue to decline.

The ELA has 63 members, including United Leasing, Premier Computers (part of the recently listed Dataserv), and Anglo Leasing.

Mitchener says the value of leasing market has grown steadily in real terms over the last five years. But as the economy improves, the value of the leasing market will level off.

SOFTWARE FILE

ICL goes Concurrent for its new personal

by Claire Gooding
ICL has pinned its colours to the mast with Concurrent CP/M 3.1 as the native operating system for its new multi-user 16-bit personal computer. The machine is due to be launched this week.

Unlike previous ICL personal computers, the 16-bit system does not originate at Rair but is manufactured and designed entirely by ICL. The company has decided to stick with Digital Research's stick with Digital Research's operating system strategy by taking Concurrent 3.1, which is multi-tasking as well as multi-user, and allows IBM's operating system PC-DOS to run as part of its environment.

Concurrent CP/M has been specified by the Department of Health and Social Security as the operating system supporting its office automation plan, the Local

Office Project, in which ICL is expected to be the front runner. Fourteen other manufacturers, including IBM, run the operating system, but so far only three British manufacturers, Future Technology Systems, ICL and ACT have implemented the new release, 3.1.

ICL looked at several multi-user operating systems before plumping for 3.1. Although the system can, in theory, manage up to 16 multi-user terminals and several tasks on each screen, ICL is limiting its users to four screens, and recommending a maximum of four windows in the interests of maximum performance.

Concurrent CP/M 3.1 is spearheading the attempt by Digital Research to rally the multi-user manufacturers round a common multi-tasking system.

"The software market is estimated at \$4.5 billion over the next five years, growing at 45% a year," says Paul Bailey, Digital Research's vice-president of European operations. "It makes sense to span as broad a market as possible."

He regards Concurrent as the gateway to a whole range of applications under different operating systems, spanning eight-bit single user machines, IBM's PC-DOS and, in some cases, the coming generation of Unix-based multi-user systems based on Motorola's 68000 and Intel's 286 chips. Digital Research is heavily involved in Unix implementation with Motorola and Intel.

"The crucial job is to communicate and share resources between different processors and systems," says Bailey. "That is why Concurrent

allows eight- and 16-bit machines on its network." Bailey sees IBM's role as important but not dominant in the multi-user market, especially as other manufacturers are already endorsing Concurrent.

"What was important to us was the multi-user capability," explains John McMillan of ICL's Software Industry Support Centre. "The other advantage is that Concurrent doesn't preclude us from using other operating systems if the need arises."

One of the functions provided by Concurrent is the ability to run several PC-DOS tasks in simultaneous "windows", effectively making PC-DOS multi-user and multi-tasking well before PC-DOS originator Microsoft's own Windows product becomes available.



BAILEY... "Gateway to whole range of applications."

Peachtree pushes into Italy

PEACHTREE has linked with a major Italian corporation to push its way into Italy's commercial and educational software markets.

The deal is with Fininvest, a conglomerate based in Milan with tentacles into television, property, financial services and travel agencies. Its newly-hatched subsidiary, Italware, will promote Peachtree's micro applications for the business world as well as its Eduware range, currently being translated into Italian.

Fininvest's two TV channels will launch a heavy promotion campaign for Peachtree products just as the time when a new series of programmes for computing in schools is being screened there.

Peachtree educational programs are currently being translated into several European languages, and the Italian version should be completed by the end of May.

The announcement follows a major contract between Peachtree and Olivetti. The leading Italian hardware maker agreed to bundle Peachtree's applications, including spreadsheet, word processor, spelling checker and mailing list manager, with all its M20 micros running under the MS-DOS operating system from this spring.

This agreement now appears as one step in a campaign by MSA,



MOORE... "Very excited."

Peachtree's parent and the world's largest applications vendor, to get its name known in Italy, which it sees as probably the third most important country in Europe's computer industry after the UK and West Germany. Up to now it has done little business there.

Peachtree UK general manager Dick Moore, who has responsibility for Continental operations, says: "I'm very excited about the idea that a whole generation of Italian children could be growing up with our software."

Fininvest is one of Italy's top five corporations, comprising over 450 companies, with headquarters in the Milan Due office complex alongside IBM. The man behind it is Silvio Berlusconi, who has built up a group of 3,000 staff with \$500 million annual turnover.

Manman is to be a service

BP's COMPUTING arm, Scicon, is to make its manufacturing control system, Manman, available as a bureau service from April.

Previously it was only available as a free-standing package costing £100,000 or more, including the hardware. Now it is to be available for £3,000 a month.

The new approach is being taken because of reluctance among manufacturers to embark on expensive automation.

Scicon product manager Peter West says many firms have compromised with micros to handle tasks such as stock control and accounts.

"These systems are very quickly outgrown and, though cheap, their software is often inadequate. This makes a nonsense of the apparent cost-savings."

The program was written by Sandy Kuritz of Ask Computer Systems in California in 1970. She was 23 and wrote it in her bedroom. It has since expanded to over 100,000 lines of code and is used worldwide at 600 Hewlett-Packard sites, including 45 in the UK.

These are concentrated mainly among small, high technology manufacturers. The larger and more conservative corporations have yet to take the plunge.

Police called in at software house

by Claire Gooding
POLICE have been investigating incidents in a dispute between two London software dealers. They visited the Kilburn offices of Pearl Systems and interviewed two of the managers, Steve Prentice and Marilyo Hickman.

The case centres on an applications generator called Pearl, developed in the US by Pearlsoft. Pearl Software International, based in Bourne, developed the product for the British market,

but was wound up with debts of £120,000 last year. Its founder, Chris Hibbert, went to work for Mingtech in Kilburn, which negotiated UK distribution rights to the program.

Its head, Stuart Lishman, employed both Hickman and Prentice until recently. Hickman was company secretary and Prentice marketing manager. But they left to set up on their own with a new venture called Pearl Systems. Mingtech is claiming they took with

them some of its property, making it impossible for it to carry on some of its projects.

Hickman has said her new firm has an "interim" agreement with the developer Pearlsoft to market the software.

Ron Lutz, chairman of the French distributor of the product, Technology Resources, says he has always dealt with Hickman and Prentice and will continue to.

But Pearlsoft stated that Magitech was the sole UK distributor.

Broker doubts the USM route

"DON'T take your company to the Unlisted Securities Market," says Blake Simms.

Simms is a merger broker or, as he would have it, an acquisition



SIMMS... Cautious.

consultant. His company, Select Amalgamations and Investments, specialises in high tech takeovers, and has arranged six marriages, which have all brought fledgling companies under the wing of its client corporations.

Select keeps a watching brief for about 100 companies. They include the likes of Ferranti and Electronic Rentals. Its deals have seen computer supplies and maintenance group Terminal Systems Services, and Derbyshire micro distributor Mideltron, bought by Electronic Rentals, and the Vinten group acquire Trivector Systems, a software company based in Sandy.

These mergers involved an average consideration of over £1 million, and usually include later

payments linked to a performance formula.

Simms' conviction is that the Unlisted Securities Market is not automatically the best option for young companies, and can store up many problems. "Companies just don't understand the pressure or exposure they will face on the market," says Simms. Not least of these is that they are expected to live up to fancy price-earnings ratios.

So Simms is crusading to dissuade companies from taking the fashionable USM route. He says he has advised five from rather more deals to it as well: Pericom, Microlease and Cifer among them.

Simms rejects the suggestion

that being bought is the soft option.

He says that getting into bed with an industrial partner can offer an entrepreneur far more security and more certain growth prospects than a flotation.

He claims that companies he once approached and which ignored his services and went to market, are now regretting it.

Ironically, several of those that got away (companies like Cifer and CPU) are coming back to him in a scramble to make their own strategic acquisitions.

According to Simms, the deals he has done so far are "just the tip of the iceberg." And the acquisition activity on the Unlisted Securities Market in recent months

SHARES TABLE

The shares table, which is specially compiled for Computer Weekly, also selected computer companies that reflect the state of the computer industry.

Previous published index: 137.77 Index: 142.85 Date: 18/04/84

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From software novice to guru in eight years

JEAN YATES has gone from novice to guru in eight years - probably a record. But then records are set and broken often by people in California, and by people in software, that this may not be the most remarkable thing about her.

She is known as one of the world's leading experts on the Unix operating system, though her claim to the title rests on having founded a small market research company employing 25 people. Her reports on the industry are sought and studied by AT&T, IBM, DEC, Hewlett-Packard - you name them.

by George Black

"My data is very reliable and that's why they trust me," she says, "but I hope people aren't treating everything I say as gospel truth. I do throw out a lot of ideas at people just to see how they go down."

While she was staying at the Inn on the Park during her recent visit to London, one of her American clients rang her in the middle of the night and kept her talking for three hours.

What about? "Oh, they wanted to know whether, when they opened their fourteenth factory in 1987, that would up their revenue by 25% or 30% or something like that. I ended up getting only two hours' sleep."

It doesn't show. Her presentation to the Unix conference was energetic and stimulating and controversial. Probably many of her listeners would have been surprised to learn that her acquaintance with computing stretches back only to December 24, 1978.

"I bought myself an Apple II for Christmas."

The following year she worked for six months selling first generation micros at Computerland in San Francisco as a way into the



YATES... "I like to be out on the edge."

industry. In 1979, she started to go around saying: "Unix is gonna be big. Very big. We're talking about maybe \$9 billion of hardware and software in 1985."

She was told in no uncertain terms that she was wrong. But she went on saying it.

Gradually people began to think there might be something in what she was saying after all. So she set up a company of her own to tell them why she was saying it - plus a lot of other things too. Jean Yates has a lot to say about the computer industry.

There are restrictions, though. She repeats: "I'm under a non-disclosure agreement with IBM."

as if she had just been told by them to write it out 50 times - which she insists she has not been. As a consultant to both IBM and AT&T she is tugged between the two biggest forces in the world of new technology, and a single step out of line could cost her her career. Or at least, this career.

She does not intend to become tied to Unix. "I'm glad I was right about it and I'd like to hear from some of those who said I was wrong. But I'm gonna start looking for something else now. I like to be out on the edge."

This is followed by a statement of what appears to be the Yates philosophy: "If there aren't a lot of

people telling you you're doing it all wrong, you aren't doing it right."

So what will it be next? Genetic engineering? Biotechnology?

"I don't know. Maybe. I'd like to get into real consumer research, user likes and dislikes. I think that will be my next step."

Her firm, Yates Ventures, has about 100 customers now, including most of the main hardware manufacturers and a number of well-known names in the software world.

Considering her flamboyant character and the outspokenness of her views, this is quite an achievement.

So it happened to me last week as I sat waiting to meet the managing director of one of our promising young microcomputer companies. One of the company directors stopped at reception on his way out of the office and told the receptionist that he was popping out for a few hours to bank some money and do a few chores. "And by the way," he said, "if Mr. Bloggs shows up to pick up that software he wanted, tell him we are having a little problem. We can't quite get the printer interface right. Apologise for me not being here, but tell him I was called out urgently."

"Tell him in fact that I am out

DOWNTIME

Bum's back and all is well

COMPUTER people say some pretty daft things sometimes, but you'd have to go a long way to beat the latest utterance of Rod Canion, president of Houston, Texas-based Compaq Computers.

"Bum's back, and we couldn't be happier," said Canion.

This can be partly explained by the choice of "Bum" Phillips, described as one of the "winningest" coaches in American football, to open a computer show at which Compaq is exhibiting.

Bum himself can also come out with the occasional gem: "I may be a country boy, but I didn't get to the top of my trade without keeping up with the times. We couldn't run the modern football team without computers. Life is just too complex."

What a dull game soccer is by comparison. All our lot say on *Match of the Day* is "Well John, I hit the ball and there it was in the back of the net." Nary a mention of a ZX81.

Damned lies and white lies

SITTING in waiting rooms can be a boring pastime, particularly if there is no copy of the latest *Computer Weekly* on the coffee table. If, however, one keeps one's ears open in rabbit-like attentiveness, interesting little snippets can come one's way.

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"Tell him in fact that I am out

dealing with his problem. I'm not, of course, but he's not to know. It is."

They say it's tough at the top, but it is even tougher at the bottom working your way up.



Reduce stress.

A damaging peripheral?

THERE can't be many products on the market which are totally compatible with every machine from a ZX81 to a 286, but *Business World Trade in Computers* (WTC) is importing just such a product.

Aimed at reducing user stress, the Bit Banger enables you to get back at the computer with (little) or no risk of damage. "Striking a computer during a moment of frustration can relieve tension and allow the operator a fresh chance to try again with a different psychological approach," says Gordon Smith, president.

Bit Banger is a foam-headed mallet. It illustrates the *Computer Weekly* version undergoing tests on our Behemoth 9000 mainframe.

State-of-the-art?

YOU know that state-of-the-art, system-of-the-future, most-advanced-computer-known-to-man thing, the DEC PDP-11, which by the Pentagon is so anxious not to fall into Kremlin hands or we are all doomed? Well, according to Professor Martin Hester of Cardiff University, its architecture is "obsolescent". Which of them is right?

Answers on a postcard please to Caspar Weinberger, care of...

Chad

ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS
Thursday, March 8, 1984

We must solve this skills shortage

WEEK by week the evidence that Britain is falling behind because of a shortage of skilled personnel continues to accumulate.

While demand for electronics engineering graduates, trained programmers, analysts and other data processing staff grows, the cuts inflicted on higher education ensure that the demand will not be met.

The latest Policy Studies Institute (PSI) study, based on a survey of 1,200 UK factories, states: "The lack of specialist microelectronics expertise was the difficulty mentioned spontaneously more than any other as a major impediment to the introduction of microelectronics."

Last week, the Computing Services Association met in Bournemouth, and a constant theme was the shortage of trained staff for key roles in small and medium-sized firms. The managing director of Pactal spoke of the "vicious circle of not having time to train the trainees who would give us the productivity to give us more time".

The Engineering Council was also heard last week. It called for a £200 million switch in resources to ensure an adequate supply of properly educated and trained engineers. It says the shortage has occurred because economic pressures have forced industry to reduce expenditure on training.

That view is echoed by the PSI report, which says a large number of companies rely on outside recruitment.

There was one small glimmer of hope. A report published on Monday by the Institute of Manpower Studies, which evaluates the government's "new blood" initiative to increase post-graduate courses in information technology, finds that it will go some way towards helping firms overcome existing shortages of information technology manpower. But the numbers are small - only 200 in 1983 rising to 1,000 in 1984.

There is a growing consensus as to the nature of the problem, which rests with the two separate issues of training and education. There are differences as to where the solution lies: the Engineering Council's recommendation to re-allocate resources from one sector of education to another does not seem to us to achieve anything better than make do with a bad system.

Consensus, however, is the first step towards problem solving. The skills shortage which faces our industry and the country as a whole is a subject we will return to often. And an industry as clever as ours should get its heads together and come up with an expert solution.

Small fry feel the heat

"ENOUGH is enough" seems to be the message from IBM to the world's micro makers.

The 20% price cut on its PC announced in the UK last week is further evidence that IBM is getting tough with the small fry. Legal actions against Corona, Eagle and Handwell in the US were instigated by IBM when the three companies introduced products which IBM considered to be rather too similar (and cheaper) than its own.

The official line from IBM for the 20% cut (and the 7% reduction on the XT) is that production at Gresham, where the PC and XT are made, is now running smoothly enough to bring manufacturing costs down, and IBM wishes to pass on the savings to its customers.

It would seem more likely, however, that the aim of the men from Armonk is to initiate a price war against the ever-growing number of IBM-like micros on the market. There can be only one winner of such a contest now that the IBM machinery is well and truly rolling.

Having shifted around 30,000 PCs in the UK at the full price, the company has now chopped a fifth off the price tag to open up the market at the bottom end. Apparently IBM has sold as many machines as possible at the full price, and has instituted a price cut before sales begin to level off, to keep the bandwagon rolling.

One thing is, however, certain: micro companies that want to compete with IBM should ensure that they offer more than a better price.

1984 and all that...

THIS week's example of the strange things people say about computers was sent in by B. Twissell, of Covecourt, who wins £5. Imagine the simplicity of programming by just one touch; safe in the knowledge that the computer will never let you make a mistake.

Advert for computer-controlled washing machines.

LETTERS

Software prototyping is not just American

I WAS most pleased to see significant space given to software prototyping (Guy Thompson, *Computer Weekly*, February 16), a technique by no means limited to the US. I would like to supplement Thompson's excellent article by pointing out another major factor in the rise of those methods.

The availability of sophisticated but easy-to-use data networking products means that the applications development staff must now accept that a wide range of casual users, both locally and throughout organisations, will wish to have access to their programs at some level.

These users, who may well be corporate executives, will demand simple command functions and screen formats that are readily intelligible.

Coupled with the falling cost of raw computer power, it may thus be more cost-effective to optimise the presentation of the application to the user than to seek absolute efficiency at the CPU.

To conclude, prototyping is

therefore the natural counterpart to the increasing dominance of telecommunications in the computer area.

TONY RICHARDS
Marketing Communications Manager
Computer and Systems Engineering
Watford.

Equal opportunities

ROBIN WARD reports (*Computer Weekly*, February 16) on the support given by the EOC to the Davidson Centre in its project for interesting girls in the opportunities available to them in information technology.

From personal experience, while I would endorse fully the points made in the last paragraph of Ward's letter in which attention is drawn to the need to raise the level of awareness among parents and teachers, it is becoming increasingly apparent that outdated attitudes towards women's role in society, and therefore at work, are still widely held both in the home and in many of our schools.

It should be recognised also that the basic skills required for working with the new technology are quickly acquired and that for boys and girls it need not

necessarily be assumed that a professional qualification is the only key to a worthwhile and exciting job in this field.

DOROTHY ROSS
Manchester.

XXX 9XX lives on

I'M sorry, Mr Smith (*Computer Weekly*, March 1), but Mr Viesira was right, XXX 9XX still exists.

Yes, there was a good reason for changing NOR (Norwich) in 1974. Not only was the second part of the code not 9XX but the remainder of Norfolk could not be added until the code was changed.

But GIR (National Giro Centre) and NPT (the centre of Newport, Gwent) both still exist and presumably the same incentive to change them doesn't exist.

So XXX 9XX lives on.

C. G. PEACHEY
Hemel Hempstead
Herts.

Geisco electronic mail users

MAY I point out an error in your March 1 report on the NCC Electronic Mail survey?

The Geisco Quik-Com system has 20,000 users and not 200 as shown in your report. Paul Wilson's NCC study *Commercial*

Midwich got the cash

IT was with considerable concern that I read the headline given to your report (February 16) which stated that "Acorn gets factory cash" in respect of the financial package arranged by my company, Midwich Computers.

While it is true that the success we have had with Acorn's BBC Micro has contributed to our rapid expansion, the vote of confidence Midwich has been given by the new investment is not connected with Acorn in any way.

DAVID WATSON
Managing Director

Midwich Computers
Ricklethorpe
Suffolk.

The Editor welcomes letters commenting on subjects published in *Computer Weekly*, or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication. Letters may be cut.

PUZZLER

A FORKLIFT truck is driven from one end of a straight ramp to the other, and takes 25 seconds for the journey. The route involves 24ft up a slope, 36ft down another slope, and 12ft on the level.

Then the truck is turned round and driven back the other way, taking 28 seconds because there is more uphill gradient to negotiate this time.

The mathematically-minded truck driver works out that the initial 25-second journey would have taken only 23 seconds if there had been just 12ft up the slope, and 24ft on the level.

Assuming that the truck always travels at a constant speed, varying according to whether it's going uphill, downhill or on the level, what are these three rates of progress, in ft per second?

See page 69 for solution.

10 YEARS AGO

FROM *COMPUTER WEEKLY* OF MARCH 7, 1974: Ray Adkins, director of the Central Computer Agency, said he hoped that, despite cuts in government spending, it would be possible to keep expenditure within the computer services industry running at £2.5 million during 1974/75.

The only successful computer candidate in the February General Election was Barry Henderson (Con), who worked for Unisys at Livingston. The Xerox 550 and 560 systems were released in the UK by Rank Xerox Data Systems. The number of computers in US government departments rose from 6,731 to 7,149 between July 1972 and June 1973.

PLATFORM

Validation trend comes to UK

IN the late 1970s the US Department of Health was spending \$12 million a year on leasing hardware but was spending \$50 million a year on Cobol source code conversion due to incompatibilities between various compilers. It is believed that these exorbitant costs incurred on software conversion, compared to hardware cost, also apply to Fortran programs.

One of the major problems facing any computing installation when it decides to change its computer is altering the current program source code to compile on the new machine. Since 1966 there has been a standard for the programming language Fortran, yet the way in which compilers treated the source code varied to such an extent that program portability was becoming a joke.

In an effort to reduce conversion costs, the US government introduced a scheme to validate compilers against their respective

standards and then stopped federal agencies purchasing a compiler unless it had been validated. This approach has been used in the US for several years, while in the UK a Cobol compiler validation service was set up in early 1983 and a similar service for Fortran in October 1983.

Both services have been introduced in the UK by the National Computing Centre in close liaison with the Federal Software Testing Centre (FSTC), which is responsible for validations carried out in the US. As NCC uses the same procedures and test suites as the Americans the results of validations in the UK are recognised in the US, enabling compilers validated in the UK to be eligible for procurement by federal agencies in the US.

This validation technique for Fortran consists of running up to 272 programs with each program having tests for the conformance of

individual elements of the language to the ANSI X3.9-1978 Fortran standard. These tests are collectively known as the Fortran Compiler Validation Suite (FCVS).

Once these tests have been run the results are analysed and drawn up as a Validation Summary Report (VSR).

When validation became established in the US opportunities arose from which both users and implementors could derive real benefits. The VSR could point out possible incompatibilities which the compiler had with the standard, and genuine errors that the implementors may have failed to detect. It became possible for a programmer to write programs to the language standard while avoiding the problem areas defined in the VSR.

This resulted in program development costs being considerably reduced as the programmer

was no longer struggling with previously undefined, defective areas in the compiler. Training costs could now be reduced as knowledge of the language determined the content of the source code, not a particular compiler which in turn led to program portability.

A machine change no longer necessitated large source code changes, providing both the old and the new machines had their respective compilers validated. With users now free to choose from a wide variety of manufacturers not only financial savings were made but hardware decisions could be based on suitability, not compatibility.

Many implementors realised the benefits of validation as soon as they were given such a comprehensive test suite for a fraction of the cost of developing their own.

The validation report could be used as a marketing aid giving



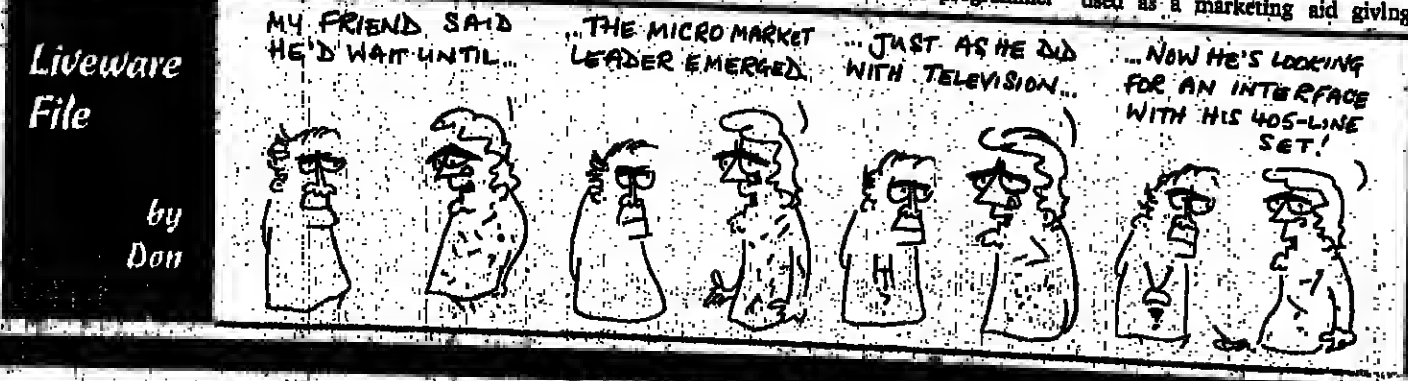
prospective buyers an independent assessment of product quality.

The move towards a more positive approach to standards in the UK has resulted in several British companies expressing interest in NCC's validation service. One British company has already completed its validation and the VSR is currently available from NCC. A further three companies are preparing themselves for formal validation and will almost certainly be validated before the year-end.

The Central Computer and Telecommunications Agency has now included compiler validation into its procurement procedures and many users are becoming aware of the importance of programming language standards. You may be one of the fortunate DP installations that already has a validated compiler. On the other hand, you may not. If so changing your source code could be more expensive than new hardware.

David Littlewood

David Littlewood works in the Standards Division of the National Computing Centre.



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Summagraphics Corporation has been the sole UK distributor of the Bit Pad One graphics tablet, the Microgrid and the Summagraphics Corporation's new Bit Pad One graphics tablet. The Bit Pad One is a new type of graphics tablet which is designed to be used with a computer. It is a new type of graphics tablet which is designed to be used with a computer. It is a new type of graphics tablet which is designed to be used with a computer.

MICROQUEST

Calling all young micro innovators

Industry minister John Butcher talks to Nuala Moran about microelectronics and Microquest, a bright competition to involve young people in technology

NEW ideas from young people on microelectronics applications will be the lifeblood of the future and Microquest is an annual competition designed to find them. Industry Minister John Butcher is a strong supporter of the contest, and he says: "It encourages young people to think creatively about the potential of microelectronics in industry."

"It is vital that young people coming into industry should be aware of the impact and potential of the technology. Microquest is excellent for developing that awareness."

Butcher also stresses the importance of microelectronics to industry. "Microelectronics is a basic industrial tool. It gives scope for the development of new or improved products and processes in all sectors of manufacturing. It makes possible increased productivity, better, cheaper and more reliable products. Firms not

Butcher says he is very pleased with what MAP has done so far. "We are making progress on all fronts. In terms of raising awareness of the potential of the technology, some 300,000 people have attended MAP awareness activities, such as seminars and workshops."

"On training, the number of places annually on short courses is running at about 30,000, compared with only 2,500 in 1978. Over 4,400 MAPCON feasibility studies have been offered support, and some 3,200 completed."

"Finally, over 1,200 applications for project development support have been approved, of which nearly 500 are complete."

"A PSI survey carried out in 1981 showed that 30% of the manufacturing industry was using or planning to use microelectronics. The latest PSI survey shows a substantial increase to nearly 50%, which is good progress."

definite evidence that it is MAP which is getting people to use microelectronics.

"MAP's usefulness is borne out by industrial views recorded in the PSI study, and by the continuing demand for MAP assistance. The 1,227 applications for project support approved so far have a total value of £200 millions, a significant contribution to the modernisation of the UK manufacturing industry," he says.

DoTI introduced MAP because of a concern that British companies were lagging behind their international competitors in introducing new technology.

"We have initiated comparative studies in France and Germany to

give us a clearer picture, but even if they show we are edging ahead, we must ensure that UK industry is in a position to shape technological developments."

Butcher dismisses criticism that shortcomings in the MAPCON feasibility studies have limited the progress that might have been made by MAP, because of inadequate support of projects.

"For those potential users who were a little fearful of getting involved in new technology, MAPCON has provided a painless way of testing the water. It has brought new technology to those industries that have been resisting the blandishments of information technology companies in the UK."

BUTCHER... "Microquest is excellent for developing awareness."



How you can win £50

COMPUTER WEEKLY is joining with the Department of Trade and Industry and Williams and Glyn's Bank to promote the Microelectronics Application Project (MAP) - the government scheme to encourage British industry to use microelectronics in products and processes.

A special £50 Computer Weekly prize will be awarded to the applicant who submits the best entry to the Microquest competition each month up to the end of June.

Microquest is an annual competition with a £1,000 first prize, to find innovative ideas from young people between the ages of 16 and 21 on how to use microelectronics in industry.

Entrants to Microquest must submit a 2,500 word report which identifies a new use for microelectronics and explains how it could be implemented. The idea is to produce applications that will improve and develop original processes or products, and the organisers stress that the applications must be practical and therefore realistic in terms of cost.

It is hoped that employers

will take a keen interest in the projects that are submitted, and all applications must be approved by the employer. Senior people who read Computer Weekly are encouraged to sponsor young people in their departments.

All entries will be studied by DoTI's team at the Warren Springs Laboratory, which is responsible for assessing applications for MAP grants. Entries for the Microquest can be obtained from any Williams and Glyn's Bank or Royal Bank of Scotland branch, or the Department of Trade and Industry at Microquest, MAP Centre, Freepost, Room 514, 29 Broad Street, London W1E 5BR.

All entries will go in the monthly Computer Weekly special competition as well as the main competition.

Geoffrey Field, marketing manager of Williams and Glyn's Bank, explains that the bank decided to take part in sponsoring the competition because: "MAP is trying to attract small and medium-sized businesses to take up its grants, and that fits in with our customer profile."

exploiting it will simply lose the competitive race."

Microelectronics Application Project (MAP) is DoTI's scheme to encourage the use of microprocessors by British industry in its products and processes. It was set up in 1978 in response to widespread concern that the UK was lagging behind its international competitors in recognising the significance and potential of microelectronics.

"MAP had an initial budget of £55 million and another £30 million was added in 1982."

Speaking on the future of MAP, Butcher says that £18 million of the £30 million promised for the scheme in November 1982 has been spent. This brings the sum spent on MAP up to £73m.

"It is too early to say if any of the money will be allocated. There is a long way to go before the current allocation runs out. We will be considering this in the light of the 1983 Policy Studies Institute (PSI) report on microelectronics in British industry, published last week." (See front page.)

Butcher adds: "The impact has been dramatic and considerable, and the figures speak for themselves. But they also confirm that there is a lot still to be done; many smaller firms are not yet persuaded of the relevance of microelectronics."

"This reinforces the need to encourage engineers and technicians coming into the industry to be aware of the potential, and that's why we're supporting Microquest."

According to Butcher, there is

IN THE FUTURE THE NAS 7380 MIGHT JUST HAVE SOME REAL COMPETITION

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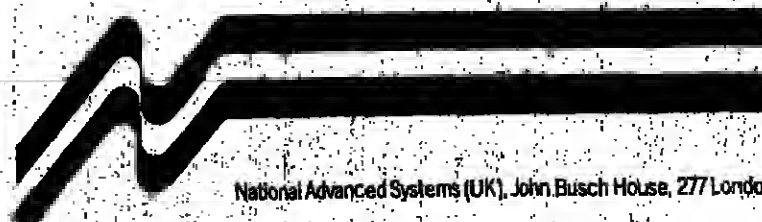
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John Butcher
1-1-80

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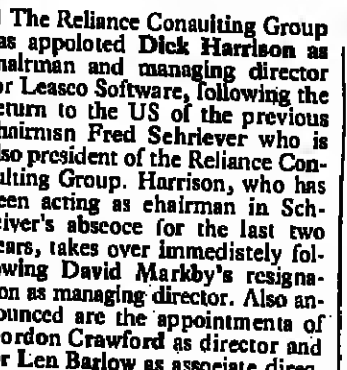
Peter Jones has joined NIE with responsibility for Midlands and Northern dealer sales and to recruit and establish new dealer outlets. He was previously area sales manager for Thane Systems, NIE's largest distributor of peripherals. Richard Sharp becomes NIE's dealer sales executive for the City, East Anglia and the Northern Home counties, having previously been a sales engineer with Nuclear Data Inc selling real time minicomputers to the nuclear power industry. Peter Diamond has been appointed NIE's dealer support executive. A New Zealander, he came to the UK in 1978.

SK Computer Systems has made two appointments in the Systems Division. Clive Richards, who becomes manager, was previously a field service marketing executive. David Dalton is appointed Southern area sales executive, with responsibility for the company's operation in Wales and South-west England.



Neville Barber has been appointed product manager at Peachtree Software International, with responsibility for the Peachtree Basic Accounting System (PBAS). He moved to Peachtree from MSA where he was business consultant. Carl Chilly has been appointed manager of the systems engineering group at Peachtree Software International. His previous experience has been chiefly with software. At Rank Xerox he was senior software engineer on Ethernet Systems.

R&H Systems has appointed Alan Dunkerley as sales manager. He comes from Gould SEL where he was marketing manager for industrial automation.



Andrew Reid-Moore (above) has been appointed international marketing manager within Computer Automation's Naked Mini Division (NMD). He will be responsible for sales of NMD products throughout Europe, excluding Germany and the UK. Before joining Computer Automation, he was a territory sales manager with Triumph Adair.

The Reliance Consulting Group has appointed Dick Harrison as chairman and managing director for Leasco Software, following the return to the US of the previous chairman Fred Schriever who is also president of the Reliance Consulting Group. Harrison, who has been acting as chairman in Schriever's absence for the last two years, takes over immediately following David Markby's resignation as managing director. Also announced are the appointments of Gordon Crawford as director and Dr Len Barlow as associate director. Harrison's other appointments include director and vice-president of the Reliance Consulting Group, financial director of the Tobacco Group and chairman and managing director of Moody Tottrup International.

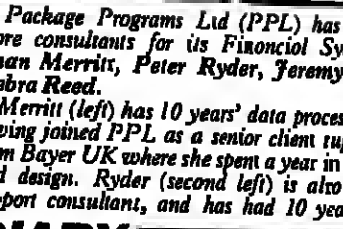
Minne has appointed Richard Draper as new product marketing manager. He has worked in this field for Control Dataset, Magnetic Media and CDC.



Terry Shurwood (above) has been appointed to the board of Oric Products International at Ascot. He joins Oric as sales and marketing director, taking over from Peter Harding who assumes responsibility for new vertical markets including viewdata. Shurwood is a former national account manager for ITT, general sales manager for Ingersoll Electronics and, most recently, sales and marketing director for Mattel Electronics (UK).



Chris James (above) is the new managing director of Reliance Systems, the spearhead of a GEC thrust into information technology marketing in 1984. He comes from STC Business Systems where he was communications systems director with responsibility for STC's approach to office automation.



Package Programs Ltd (PPL) has appointed four more consultants for its Financial Systems Division: Shan Merritt, Peter Ryder, Jeremy Heading and Dobra Reed.

Merritt (left) has 10 years' data processing experience, having joined PPL as a senior client support consultant from Bayer UK where he spent a year in systems analysis and design. Ryder (second left) is also a senior client support consultant, and has had 10 years as a systems

Visit to College of Building, Glasgow. BCS Micro Sub-group. Details from Mrs J. E. Fleming on 041-887 0131, ext 343. Telex: BCS Scottish WP and OA Group. Speaker from British Telecom. Music Room, Staff Club, University of Strathclyde, Glasgow. 6.30.

Developing Online Applications. Five-day residential workshop. BIS Applied Systems. Queens Hotel, Eastbourne. £630 plus VAT. Details from Cherry Bigmore on 01-261 9237.

Structured Systems Design. Five-day residential workshop. BIS Applied Systems. Bedford Hotel, Brighton. Details from Cherry Bigmore on 01-267 9237.

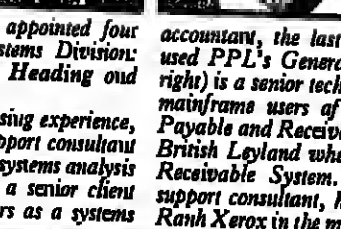
Perspectives. Systems Designers Ltd five-day course. Primley Hall Hotel, Camberley, Surrey. £550

Jeff Dukes, managing director of Infotron Systems since he started the company in 1975, has set up and become director of the new Infotron Multinational sales department. Bob Macleod becomes managing director of Infotron Systems, having been UK sales manager for two years. Tony Smith takes on the role of general manager and company secretary of Infotron Systems. He has been with Infotron for five years as financial manager, after several years' experience with Plessey at Poole. Mike Hiard becomes London area sales manager after 18 months with Infotron as a sales executive, and Ted Richardson, who joined Infotron Systems as engineering manager three years ago, after 11 years with British Telecom, now takes over as European marketing manager.

John Preston has been appointed marketing consultant, Datasolve Information Services. Previously, he was consultant in marketing for Whitehead Mann, and had held marketing and promotional positions at Calcomp, Irel and ICL.



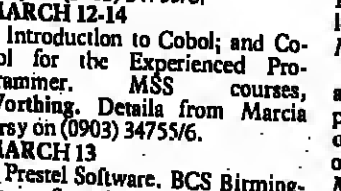
Alan Richardson (above) has been appointed director, special projects, of SCL (Systems Consultants Limited), a computer bureau and service company. He joins from Systemsware, a business unit comprising 40 computer specialists within NIE-Peoples where he was managing director with responsibility for providing a variety of computer services.



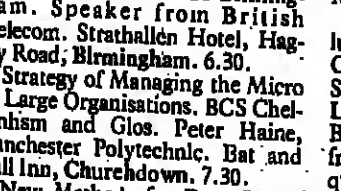
Ferranti Cetera Graphic, the Scottish-based CAD/CAM arm of the Ferranti electronics group, has appointed Tor-Hugo Torstensen as publicity and promotions executive. Norwegian born, he joins from Ingersoll Rand in Manchester where he was promotions manager, international operations.



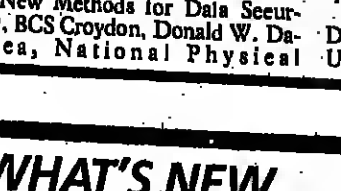
Feshoo Systems has appointed Paul Streets as a sales executive with special responsibilities for Data Control system sales to banking and related industries. Streets was previously with Bankers Trust in the City. His earlier experience was with Tesco, Citibank Savings and NatWest.



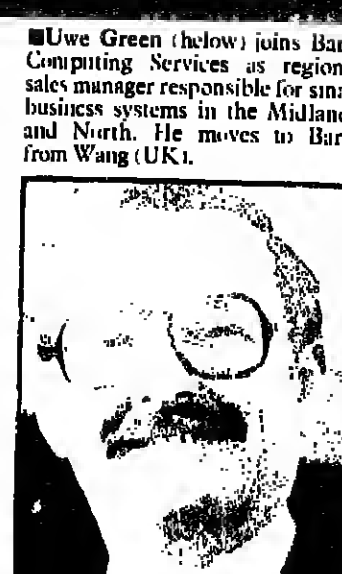
Michael Young has been appointed managing director for Systematics International Microsystems. He joined the company as UK marketing manager in 1980. Previous posts include managing director of Sentinel Computers (Europe), and marketing manager for Computerworld Boston.



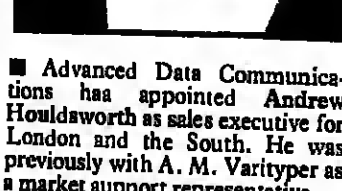
The BBC Microcomputers Project. BCS Chester and North Wales. J. Loveland, BBC North-east. Hayden Rees Room, Theatre Clwyd, Mold. 7.30. Cobol 84 and Beyond. BCS Coventry. John Trance, UMIST. Room N16, Lancaster Polytechnic. Coventry. 7.30. Office Automation - Promises and Pitfalls. BCS Manchester. R. Taylor. Office Technology Ltd. St James House, Pocklington Way, Salford. 6.15. Numbers limited contact N. Beattie. 061-436 5000.



Visit to Cipher Systems. Software in Video Terminals. BCS North Wales. Contact P. Potten on Swindon 29879. Programming Methodology. BCS Teesside. Richard Mitchell. Hatfield Polytechnic. Computer and Mathematical Sciences Building. The Polytechnic, Middlesbrough. 7.00.



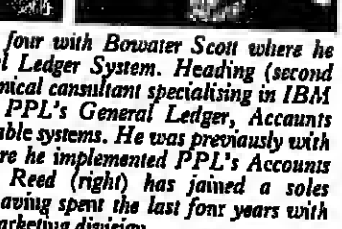
Advanced Data Communications has appointed Andrew Houldsworth as sales executive for London and the South. He was previously with A. M. Vartyr as a market support representative.



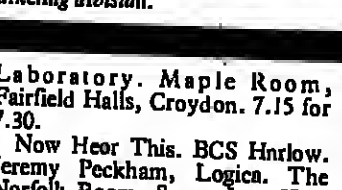
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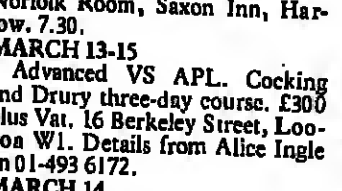
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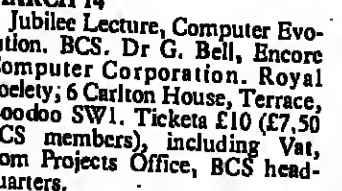
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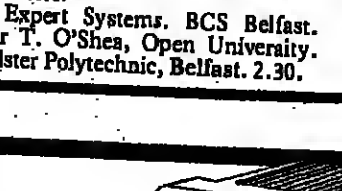
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PROJECT MANAGEMENT



Communication between expert and user is essential.

Use your users

THE ultimate success of a computer project depends on the users. It is the users who should finally accept (or reject) the system.

Even more importantly, it is the users who either oil the wheels of the system, so that it runs smoothly, or put spanners in the works so that it grinds to a halt.

The analysts have plenty of discussions with users during the investigation phase of a project. It is up to the project manager to ensure that communication is maintained in the time between conception and birth of the system.

This may reveal needs for changes (the bane of the system developer's life) earlier than would otherwise be the case, but at least these problems are tackled sooner than they would otherwise be. The big advantage is that the users remain involved, and so improve the chance of the project being successful.

Of course, the users of a computer system range from the person who types in the data to the managing director, who uses the reports to keep staff on their toes. Not all of these people will be over-enthusiastic about the system, or see its relevance with much clarity.

Nevertheless, the overall success of the project still depends on them, so a good selling job is well worth doing.

Computer people often consider themselves to be highly intelligent technocrats (very occasionally this has some justification). It is easy for such people to think they know what is best for the users. After all, they argue, what can the fuddy-duddy old users, who have used the same methods for the past five years, have to contribute to this new clever system?

Unfortunately, blarney technocrats usually forget three important points. Firstly, lack of knowledge of bits and bytes most certainly does not imply lack of intelligence. Secondly, experienced users have probably tried several ways of improving methods and have found that the current approach is the best, bearing in mind all practical problems that arise. The users are therefore well informed about what is required and what will work.

Lastly, and perhaps most importantly, it is the users who accept or reject the system and make it a success or otherwise.

The project manager and team should be building up users' confidence throughout the development period. To do this they must communicate in language they understand. They must eschew the use

of computer jargon (unless talking to a user's 12-year old child, who probably understands it better than the project manager).

The "no jargon" rule doesn't work in reverse: the users will expect the project manager to understand their jargon, as a sign that they can grasp the problems and know what they are talking about.

An acrimonious end to a project can often be predicted during the design stage if the analysts do not involve users fully.

Analysts only get a quick overview of the existing system and future requirements and then disappear into their ivory tower to design the perfect system. What designed, the system is confidently unveiled to what should be grateful users, but who appear, to our heroes' surprise, to be cantankerous Luddites.

How much better it would have been to have worked with the users throughout and made use of their practical knowledge and best

We finish our two-part series on how to manage projects successfully

Just keep talking

COMMUNICATIONS is a term that covers the written and spoken communications between individuals, as well as the transfer of data between computer and terminal and vice versa. In this article I am not concerned with this, bytes and line protocols - the only relevant protocol is that of politeness.

The ability of people to communicate has been one of the most important factors in reaching our current level of civilisation.

Similarly, poor communications have been the cause of many tragedies, ranging from major ones such as the Charge of the Light Brigade, to minor ones such as a poorly specified sales ledger system.

The apocryphal story of the message that was sent from the war front, saying "Send re-inforcements - going to advance", and received as "Send three and fourpence - going to a dance", tells us more than how cheap it was to have a good time in those days. It shows that communication is a two-way process.

Both sender and receiver of the

message thought they were communicating, but they were not. What can be done to ensure that the correct message gets through?

One way is to send information back, so that the originator can tell that the proper meaning has been received. More than a mere acknowledgment is needed. An acknowledgment is passive and only signifies that the recipient has received some information.

A more explicit response - for example, "Where is the dance?" - would have highlighted the misunderstanding, before pocket money was dispatched to the attacking troops!

Communication between computer expert and the user is important throughout a project. It is particularly easy for the project manager who is primarily a computer person to think of the project in terms of analysis or programming only, whereas these are parts of a larger project that includes the end-user as well.

It is no good the system being written on time, if the system test

data, which should be the user's responsibility, is not ready, or if the user staff are not trained. It is only by regular communication with everyone concerned that the project manager can ensure the overall success of the project.

One reason for poor communications between computer people and users is the fact that they may not be on the same wavelength. Sometimes this is just a matter of the jargon used. Those of us who have worked with computers for some time find the line between English and computer jargon hard to define. Consequently we occasionally use words in everyday speech that only a computerist would understand.

As well as the language used, a number of other factors affect the quality of communications. For example, privacy and an unobstructed approach are needed when appraising or counselling staff.

Personal feelings are also extremely important.

In one case I know the only time the boss seemed to find out unpa-

table facts was at a monthly progress meeting, attended by an outside supplier. Apart from being a poor way to run things, the ensuing explosion from the boss was embarrassing for all present. In my view the blame for this should be laid mainly at the door of the overbearing boss, rather than at that of the fearful employee.

To encourage communications, therefore, the manager must be accessible, approachable and sympathetic. However, he or she must also ask the right questions and be tenacious and forthright enough to ensure that truthful answers are obtained.

While we can do all we can to ensure good communications, the fact remains that people don't listen all the time, and don't remember everything that is said. It is therefore desirable to agree important points in writing.

This has the advantage of forcing people to think carefully, as they are generally more cautious when being asked to commit something to paper.

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The C3000 series microcomputer, including 20MB Winchester disc drive, plus FREE Qume VDU.



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Pragmatist

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OEMs

Micros cause major re-think

The arrival of the micro is forcing OEMs to radically change their line-ups. John Lamb reports

TIME was when an OEM or Original Equipment Manufacturer was a firm in the vehicle business which assembled cars or trucks from major components supplied by mainstream auto manufacturers.

By association, the term was applied to computer companies who put together systems from parts manufactured elsewhere. But it was not until the arrival of the microcomputer that the term OEM came to mean a company whose principal activity was to flesh out a ready-made processor with applications software and perhaps peripherals.

Now it seems the game has changed once again. The arrival of the microcomputer in a big way (there is hardly a well-known manufacturer now without some kind of desktop personal computer) is forcing OEMs to think long and hard about their product line-up.

In the US, where they tend to be a bit ahead of the game, *Daumation* magazine is forecasting that all OEMs will be offering some kind of small machine by the end of this year. And those who don't or who are late into the field are going to find life difficult.

Here, OEMs are only just beginning to get into the swing of things. "They [OEMs] are very tempted by the market," says Jim Oatway, head of systems supplier marketing support at Data General.

"Traditionally, they have tailored their products for individual markets, but they are finding the desktop or personal computer a little bit difficult to manage. Some will get their fingers burnt because they find it difficult to change from their normal practice of charging for hand holding and catering for their customers' needs."

The signs are that personal computers are already making an impact on the traditional OEM minicomputer business. Major suppliers like Prime, Data General, Digital Equipment and Perkin-Elmer have been trimming prices in a bid to keep the things flowing.

The arrival of the microcomputer has also spawned a new vocabulary in the OEM business. Out go the names OEM and systems house; in come such exotic terms as Value Added Reseller, Systems Integrator, Value Added User and even Value Added Dealer: new supermarket images to match the "pile 'em high and sell 'em cheap" philosophy of much of the personal computer business.

In Britain, however, the business still divides along traditional lines. The largest group of OEMs are the commercial specialists adding software to a standard system and selling it in a geographical or specialist market.

Then there are the more traditional OEMs, which incorporate their purchases into some larger system. These technical OEMs may be building typesetting equipment, body scanners, production lines or even telephone systems.

Finally, there is a small group of equipment brokers. These are companies that add no value to what they buy from manufacturers, but act as suppliers to techni-

Some will get their fingers burnt because they will find it difficult to change from their normal practice of hand-holding

cal OEMs or as a safety net in times of short supply.

Of course, there is a fourth element in the OEM equation: the manufacturers' own sales teams. As much as 60% of a manufacturer's sales can come from his own salesforce. Ensuring that these salesmen do not tread on the toes of their OEM counterparts is an almost impossible job, and perhaps one that manufacturers are in two minds about.

After all, the reason that they sell to OEMs is that selling direct is too expensive for them. If they can get to the end-user themselves, then they will.

That is the case with Data General. "Direct sales account for between 35% and 40% of our business and it is growing," says Oatway. "But that doesn't mean we don't aim to maintain our commercial and technical OEM market."

Oatway explains that Data General tends to operate on a geographical basis rather than specialising in manufacturing, medicine and so on, as many of its OEMs do.

Ideally an OEM supplier would like to have each national market neatly divided up into vertical sections and, for more common or garden applications, like commercial accounting, into geographic plots.

Each slot would be filled by a small number of OEMs who between them could guarantee a

manufacturer blanket coverage of the market.

"It doesn't work like that," says Oatway. "Ideally, we would like to have each of our customers in different markets. But it is very difficult for a small OEM to become experienced in one particular area. We do, however, have one or two OEMs who have carved out specific niches for themselves, like MGE who are strong in accountancy practices."

Establishing these vertical markets is the most important priority for OEMs, according to Oatway. "Users are aware that if they are in a specific business, they want to deal with someone who understands it. And this holds down the need to have non-computer expertise."

One trend that has helped OEMs to home-in on specific types of customer is the tendency for end-users themselves to spin-off the fruits of their investment in data processing.

P&O Computer Services, for instance, was set up to run a bureau service for its maritime parent. By 1979, the company was writing mini and micro software for the shipping, freight forwarding and construction businesses.

The company lists consultancy, systems sizing, installation, training and recruitment among the services it offers, on top of Digital Equipment and Data General systems.

P&O is in an ideal position to draw on specialists who have cut their teeth on the business for which they are writing and installing systems.

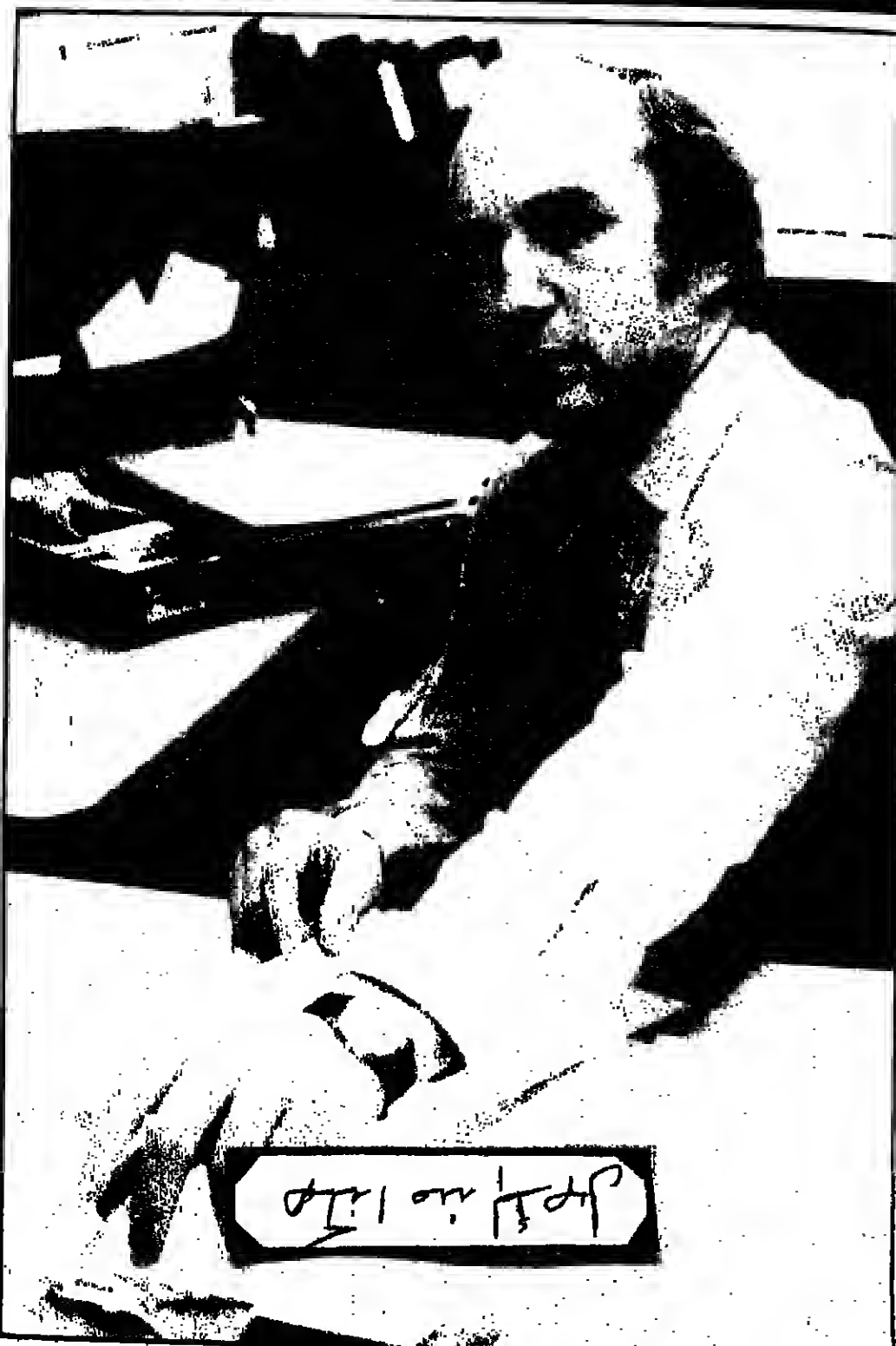
The relationship between OEMs and their suppliers has not always been entirely amicable. Changing product lines and pricing policies tend to upset the delicate balance between the two. However, the major manufacturers have begun to offer more support to their OEM customers in the shape of software tools to help in the development of applications and improved training facilities.

But this may just be a short-lived thawing in relations. It is clear that at present, microcomputers offer little to the conventional OEM unless he is prepared to get into the retailing business, or can guarantee the high volumes needed to make such business pay.

Oatway is convinced that as far as Data General is concerned, there is no reason why OEMs should not branch out into smaller systems. He maintains that Data General's three-line micro range caters for all styles of operation. At the bottom, there is a traditional

manufacturer blanket coverage of the market.

At the bottom, there is a traditional



CADOGAN. "Dealers need to focus more - the general purpose OEM is a dying breed."

micro with CP/M and MS/DOS for dealers; a middle range business machine and, at the top, the Model 20/30 with the same operating system as the established Eclipse mini.

Data General is in the throes of setting up a distribution network for the micro range, which, according to Oatway, will include commercial and technical OEMs as well as micro dealers.

Bill Cadogan, marketing manager of Data General's UK operations, puts his finger on what he sees as the main growth areas in the OEM marketplace. "Obviously, the desktop system is becoming more and more functional," he says. "As a result, OEM vendors have to sell more systems to get the same turnover as they used to get on bigger systems."

"At the smaller end of the market - a group of microcomputers for example - the market is definitely growing at between 30 and 40% per year."

"At the other end of the market, with the higher volume 32-bit systems, demand is growing at about the same rate."

According to Cadogan, 16-bit sales have levelled off, and although the sales figures are still high, they are not increasing at the same rate.

Cadogan is also specific about the kinds of areas in which OEM dealers should be operating. "Dealers need to focus more - the general purpose OEM is a dying breed. Successful OEMs these days are entering vertical markets, developing their own software for particular specific markets. OEMs are also going to have to sell office automation software in addition to the industry-specific software; too."

The growth in networked micros may be the best opportunity for existing OEMs. There is little doubt that operating and setting up such systems is beyond the abilities of most users, even if they had the inclination to speed bouts familiarising themselves with the technology. The arrival of proven networking software and standard network interfaces could open up a market for OEMs that is every bit as big as that for minicomputers.

In the meantime though, OEMs face a difficult period of adapting to new styles. "My message to OEMs is to make sure they are fully aware of the market and of the effects that a broader product line will have on their product line," says Oatway.

They should also be thinking long and hard about the best way to bring their software down onto the smaller machines when they come.

The OEM superstar of them all, Digital Equipment, began to exactly that way, and some of this hardware OEM type of marketing still goes on. In the loosest terms, it is possible to think of Gene Amdahl's Trilogy Corporation performing the same sort of function in licensing out the use of its wafer-level fabricated chips for use in Digital and Sperry computer systems.

These days, the re-sale of other people's products, whether with the addition of bits of software or kit or not, is big business, and covers everything from the biggest of mainframes to the smallest of micros, not to mention peripherals and add-ons as well.

OEMs

The never ending tale of badge engineering art

The chains of badge engineering which have emerged out of hardware OEM sales are endless, and form some strange partnerships. Della Bradshaw traces the growth of this new genus and defines some of its neighbours

BOXES of tea from Sainsbury or woolly jumpers from Marks and Spencer have one thing in common: their origins may be unknown but the label convinces the customers that what they are buying is "quality". When it comes to computers, the situation is much the same.

Those strange selling practices known as OEM sales, or badge engineering, or often as not just straightforward marketing, have been keeping the computer market alive for years. But now OEM-ing has really come of age, with IBM's decision to sell its large 3380 discs for resale by Siemens, NCR and Digital Equipment.

Of course, IBM itself has not been able to survive, particularly at the lower end of the computer market, without a bit of OEM-ing. To get the Personal Computer out on to the market place at the right time and in the right quantities, it had to sub-contract a lot of its manufacture, even as far afield as Japan and Taiwan.

But is that good solid OEM-ing, or is it just sub-contracting, or is it marketing, or what? The definitions seem as vague as the alliances. A spokesman for ICL, for example, says the equipment ICL supplied under an OEM agreement were printers, from Ricoh and Quine, which are bought in and sold without even gluing on a new label, while the larger Siemens laser printer is marketed as the ICL LPS14.

But ICL is one of the most prominent companies when it comes to buying in equipment - there is the Atlas 10 mainframe and the point of sale terminals which it buys from Fujitsu, the Perq system which comes from what used to be called the Three Rivers Company in the US, and the DRS8801 word processor which it gets from Logica VTS, not to mention the recently approved DN2000 large digital PABX, better known as Mite's SX2000.

And best known of all is probably the Rait Black Box, sold by ICL as its eight-bit personal computer.

Of course, they all undergo a rather swish change of plastic boxes, and come out neatly kitted in brown and cream, as well as

Even IBM itself has not been able to survive without a bit of OEM-ing

sporting a flashy new ICL logo. According to ICL, the real name for that is "badge engineering", even though the term engineering seems a little over the top as a description of the process involved.

ICL, of course, is not adverse to selling its own kit to other manufacturers which are badge engineers. British Telecom's Merlin division, for example, gets its kit direct from ICL, with a bit of Logica software thrown in for good measure.

But whether you want to talk about badge engineering or value-added re-sale, the root of all these marketing plays began in the dim and distant past with hardware OEM sales. That was the sale of chips or boards or chassis for machines to other companies for them to package up into their own products.

The OEM superstar of them all,

Digital Equipment, began to exactly that way, and some of this hardware OEM type of marketing still goes on. In the loosest terms, it is possible to think of Gene Amdahl's Trilogy Corporation performing the same sort of function in licensing out the use of its wafer-level fabricated chips for use in Digital and Sperry computer systems.

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They all undergo a rather swish change of plastic boxes and come out neatly kitted in brown and cream

At the large end of the market in particular, it is easy to see why marketing someone else's product is better than developing our own I/O cost. For the company which actually did the development, there is access to markets without the investment in marketing teams.

Just to look at the big IBM plug-compatible suppliers puts you in the picture. You can buy the big PCs from any of eight suppliers - Amdahl, Hitachi, Fujitsu, BASF, Olivetti, NAL, ICL or Siemens - but you have only actually got a choice of three ranges of machines - from Amdahl, Hitachi and Fujitsu. The others just buy them in.

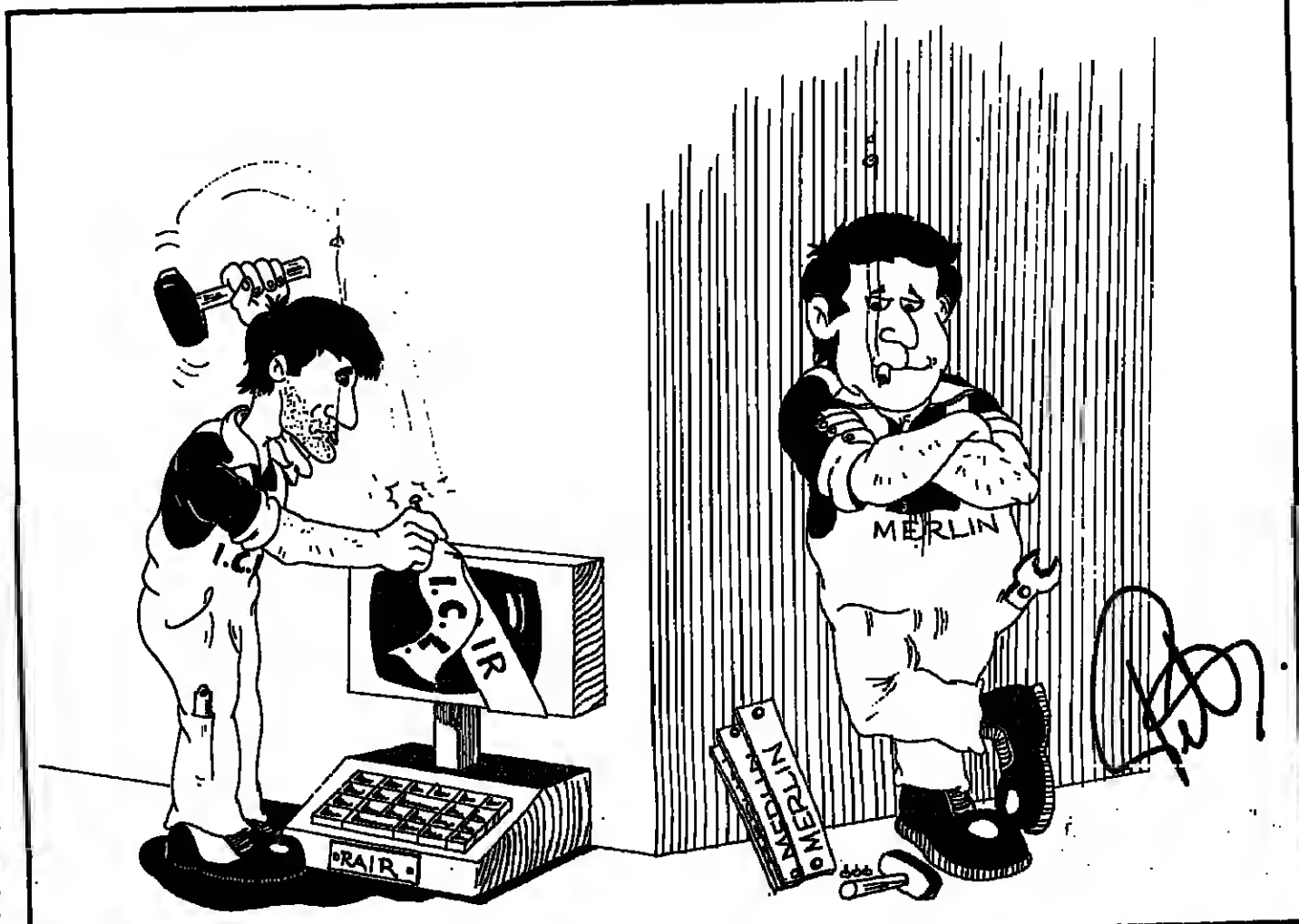
In the middle of the computer range, numerous mini-manufacturers sell their products on, either "value-added" with software, or as the processing centre for other machines. Digital Equipment, one of the biggest suppliers of them all, says it is unable to disclose what percentage of its business goes to OEM customers, or who those customers are.

But obvious uses are for scientific and for engineering purposes - CAD/CAM for example. Calman, the CAD/CAM arm of the US General Electric conglomerate, for example, has developed most of its software on Vaxes, and sells the hardware for Digital, along with its software.

Data General is more forthcoming about its OEM sales. About 50% of the UK sales of Data General hardware goes to OEM dealers, that is, dealers who sell the hardware carrying the Data General label but with added software. Companies like MGE, one of the leading vendors of computers to the chartered accountancy profession, use a range of Data General hardware.

Liverpool-based Fraser Williams uses Data General hardware to complement its software for insurance brokers and estate agents, and also markets Digital Equipment as well.

Perkin-Elmer also sells its kit, mainly to scientific or top end of the market companies, which package the equipment for supermini applications. One such company is ABS Computers, which launched its top-of-the-range Chorus 321 in October last year, built round a Perkin-Elmer 32-bit processor. The Chorus runs under Unix but ABS configures the systems with its own terminals



What's in a name?

and peripherals. The Chorus 123 is not a cheap product - it starts at around £100,000 - but it can support up to 32 terminals from up to four Mbytes per second of memory.

In the micro field, companies like Rait and Texas Instruments spring readily to mind as companies that happily sell their machines for resale, not to mention the Timex micro, just another version of the Spectrum.

And it's not only one brand of micro per distributor either. STC, for example, classically known as a telecommunications company, decided it would get into the micro field about a year

These days the re-sale of other people's products is big business

ago. STC took on Commodore, Hewlett-Packard, Rait and Digital Equipment hardware, which it sells with standard packages like Visicalc, Silicon Office and Peachtree software.

STC's reason for getting into micro distribution is obvious. As the business manager of STC Micros said: "Anybody with an account with STC Components Group has one with STC Micros - that means we already have 6,000 potential purchasers on account."

Other telecommunications companies have tended to go for terminals instead of micros, as a means of selling communications and office automation software such as teletext. Plessey and GEC in the UK have opted for Convergent Technology terminals - Plessey is to sell them as part of its T3 office

automation network based on the IDK digital voice and data PABX. AT&T in the US has also made the decision to go in with Convergent for its office automation project.

As well as the basic machines, peripherals are generally supplied on an OEM basis, especially printers, which require completely different development techniques from those usually employed by the computer manufacturer. Centronics, Quine and Ricoh are all big names in the OEM supplies business. So is Brother, which supplies Olivetti and Sord, and Newbury Data, which supplies companies like Decision Data.

Communication equipment can also be sold on an OEM basis.

Hasler, for example, sells its telex box add-on to micro dealers for them to incorporate in their machines, as does Data and Control Equipment with its recently-approved Telexbox 2.

One of the most difficult things

OEM vendors are averaging 30% growth every year

to sort out with OEM suppliers is just exactly who supplies what to whom. The problem is highlighted by Digital Equipment, which is not even prepared to say who its equipment goes to.

When the printer firm Centronics decided to run an advertising

campaign under the slogan "What's in a Name?", a couple of years ago, showing a bunch of re-wrapped Centronics printers, it met with considerable resistance from several of the OEMs; so much resistance, in fact, that the ad campaign had to be shelved.

Whatever happens in the OEM markets, printers look like remaining one of the major types of kit to be shipped around. On the computer side, things appear to be growing and thriving, depending on which particular bit of kit is being sold, and what it is being sold with. As an overall rule of thumb, however, OEM vendors are averaging 30% growth per year.

Della Bradshaw is communications editor of Electronics Weekly.

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How to survive in the OEM jungle

Frank Booty looks at the intricacies of selling kit in this day and age

ONCE you bought a computer from either the manufacturer or an Original Equipment Manufacturer (OEM) for resale to someone else. But that was once upon a time.

As the computer industry has matured, so the jargon words and channels of selling the products have become more complex.

Over the past half decade, the terms systems house, systems integrator, consultant and hardware OEM have all become established.

Recently in the US it became clear that rapid changes in computer and related technologies had created lower-cost products and systems which opened up vast new end-user markets.

To meet the heavy demands from these new markets manufacturers began to put into place distribution networks which use a variety of Independent Sales Organisations, or ISOs.

There are many different kinds of ISO, including distributors, dealers, systems integrators, computer retailers, commercial OEMs, office machine/products dealers, agents and representatives.

The rising importance of distributors resulted in the first Dealers' Exhibition in 1979 - an event which subsequently went on to spawn a series of shows for ISOs, including Comdex/Europe and (in March 1985) Comdex/Japan.

Last year's Comdex/Fall in Las Vegas in November boasted over 1,400 exhibitors in five separate exhibition halls consuming 1,200,000 square feet of exhibit space - a far cry from the 156 exhibitors at the MGM Grand Hotel in Vegas in 1979.

This means that new avenues for selling computer products have been created. Increasing costs of marketing computer and word processing products within Europe have led to searches for new, lower-cost methods of distribution.

Europe is subtly different. Aside from the two-year, US lead in the technology race, there are the often unacknowledged problems of getting across Europe's cultural and language barriers, as well as the difficulties thrown up by fragmentation and duplication.

And European ISOs need to move carefully in acquiring their products, particularly if they cross national boundary lines. For example, transfer pricing can make collective buying in the US an attractive proposition, but the trade-off may be a loss of manufacturer support.

However, the US marketing hype has made its impact on European territory. Most people involved in the buying and marketing of computer kit in Europe are now familiar with the concept of the Independent Sales Organisation, or ISO.

Examples of ISOs include Pragma, of Rickmansworth, Herts, which offers various types of printer product and other peripherals; Sintrom Electronics of Reading which sells microcomputer peripherals to end-users and OEMs in Britain; Unicom of Milan which includes a chain of computer retailing shops trading under the name of Computaria; and Kontron Elektronik of Munich, which markets computer peripherals manufactured in the US and Japan to OEMs, systems house and end-users in Germany.

Nordic Software and Kontorsvecke of Stockholm both specialise in the distribution of personal computers while Geveke Electronics of Amsterdam is distributor of computer products, data communications and industrial electronic equipment.

There are also the US shows which have been duplicated over here, notably the Comdex/Europe event and the International Computer Conferences (ICCs), which are constituted from a series of one-day mixers of seminar programme/OEM exhibition hosted at major European sites like Frankfurt, Stockholm, Paris and London. These regional displays of operating equipment, combined with technical seminars, help participants to reach key decision-makers where they live and work. Simultaneously the ICCs support regional sales personnel with an economical use of time, money and manpower.

In addition, the conferences are held in major hotels, selected for their location close to major OEM marketing areas and have an "invitation only" format - to exclude large numbers of sales and hobbyists.

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The US is in the grip of a second marketing phase, the Value Added Market, VAM. Basically, this is made up of Value Added OEMs which trade with Value Added Resellers, both of which sell to Value Added Users.

The products sold into the Value Added Market (by the OEMs, resellers and innovative end-users) include CPUs, single-board microcomputers, array processors, tape and disc drives, terminals, printers/plotters, data communications equipment, add-on cards, memories, controllers, software and supplies and media.

It is a wide world which has been going on for some time. But the terminology has been changing, to reflect the state of the industry.

Value Added OEMs include manufacturers of computer systems and hardware OEMs. Value Added Resellers are defined as systems houses, systems integrators, communications systems integrators and consultants.

The Value Added Users are to be found working in engineering, scientific, manufacturing and government institutions and financial application areas.

Value Added OEMs are systems integrators and mini/microcomputer manufacturers which add value by incorporating CPUs, peripherals, data communications equipment, software and other related products into their systems.

Typical of such OEMs is Televideo Systems which manufactures CRT terminals and multi-user small business systems, and sells through a network of independent distributors.

Apollo Computer manufactures 32-bit "superminis" computers that can be networked for distributed multiprocessing, selling direct and through systems houses.

Altos Computer Systems, selling direct, through systems houses and dealers (Unison Technology, Trilport Associated Systems), manufactures 16-bit and 32-bit multi-user microcomputers.

Digital Equipment Corp sells its products by a direct salesforce, through "authorised" distributors (Arrow Computer and Rapid Re-equip for example) and through DEC-owned retail stores.

Hewlett-Packard manufactures 16-bit microcomputers, desk-top computers, alphanumeric and graphics CRT terminals, printers, plotters, hard copy units and minicomputer or desk-top Computer-Automated Test Systems based on its extensive line of instrumentation products. HP sells direct and through distributors.

Intel manufactures microcomputers, add-in memory and microprocessor development systems, based on its full line of microprocessor and memory chips, and sells direct and through distributors (such as Rapid Re-equip).

Computer graphics, after all, affect the sales of graphic terminals, systems, monitors, controllers and software needed to meet the requirements of applications such as scientific data processing, laboratory control, industrial automation, design and drafting, computer-aided instruction, and specialised control.

Similarly, the computer graphics argument can be applied to the markets constituted by line printers, solid character printers, serial printers, floppy disc drives, Winchester disc drives, tape cassettes, cartridges, modems, CRT terminals, floppy disc media, printer ribbons and tape drives.

There is also the new OEM market of personal computers used in value added systems. In an incredibly short time, the personal computer has created a market as vast and diverse as the industry itself.

Advanced technologies, marketing strategies and new distribution channels are both the cause and result of the personal computer boom.

The personal computer OEM market has developed to serve the needs of the user requiring a more sophisticated system, and IBM has instituted a value added programme for the IBM-PC.

Those wishing to buy a personal computer need to go to one of IBM's authorised dealers in the UK and Ireland. At the last count there were 144 - 29 of them based in London. Specialist Computer Centres of Birmingham and Liverpool, for example, are authorised dealers for IBM-PC products and provide a full range of personal computer add-ons. Techland Systems Int of Bourne End, Bucks, supplies terminal emulation products for the personal computer so that the machine can be used with System 34, System 36 or System 38 machines for full featured S21 Model 12 emulation for remote or local operation.

Add-on printed circuit boards to enhance the personal computer are marketed by such organisations as Quibie Distributing of London, Inteqrad of Slough and CPS (Data Systems) of Birmingham.

Apple also has a continuing OEM support programme, and in particular the company has a department, the significant roads that personal computers have made into the industrial scientific OEM market.

In summary, to quote from International Data Corp, although the technical OEM market represents a diminishing proportion of all minicomputer sales, the revenues are significant and growing at 13% a year.

Recessional European economies have not helped this growth rate, although supplier revenues are expected to grow at a slightly slower rate due to more value being added by the OEMs themselves in terms of hardware, software and services.

The increase of added value has been encouraged by the slowing of overall technical sector growth which has led to more purchasing of bare board components, including microprocessors.

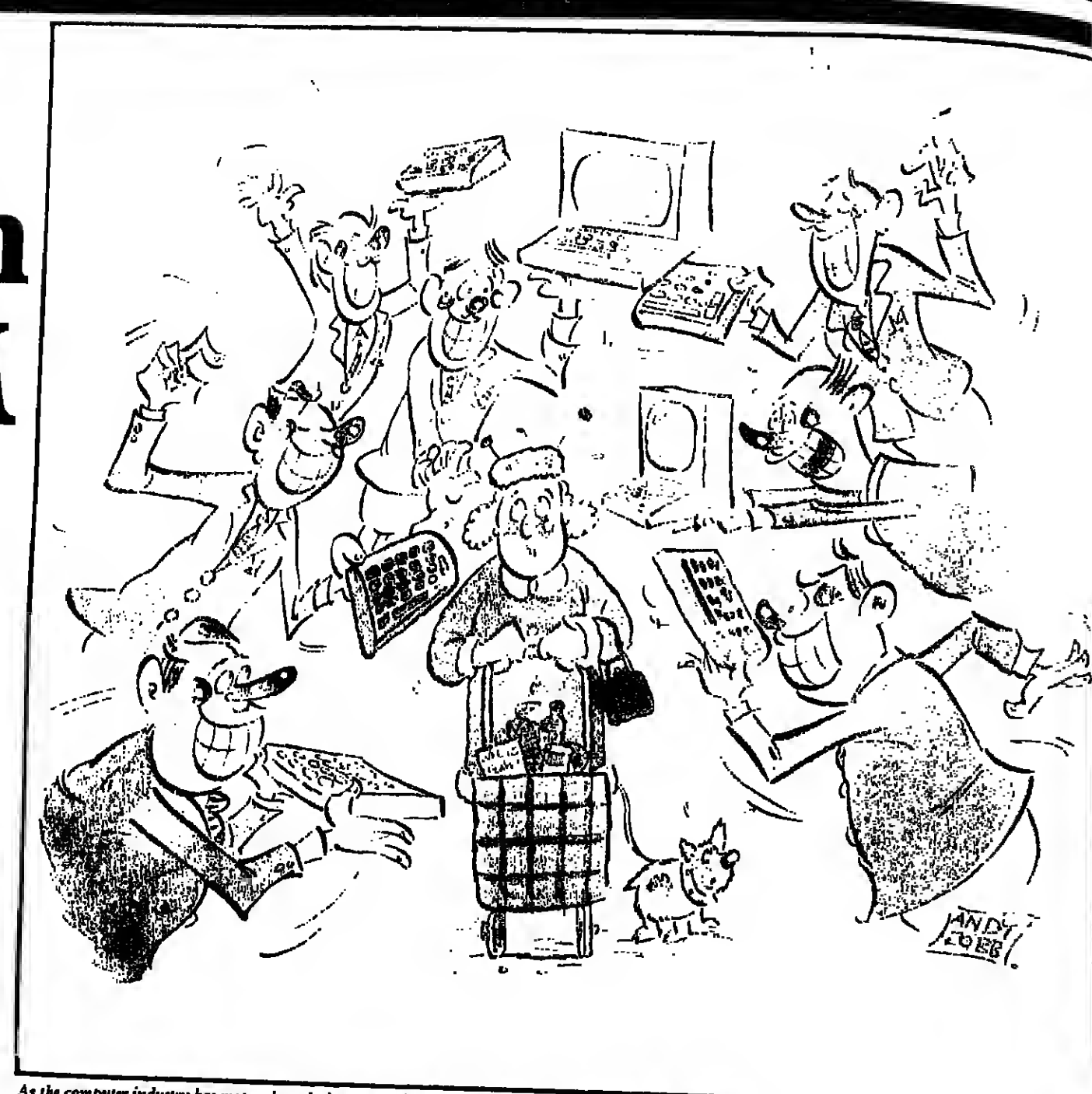
Value is added in different ways by technical OEMs depending on application focus. Hardware manufacturing has added value ranges from sensors used in process control and quality management applications to specialised workstations for Computer Aided Design (CAD).

The need for special hardware reduces the possibility of a major supplier attacking an application area itself rather than through an OEM, which helps to assure the OEM's long-term viability. But it does not lessen the threat of the OEM, vertically integrating into CPU manufacture.

Where pressures for cost reduction are strong and CPU requirements may be satisfied by the use of microprocessor based systems, IDC says, OEM manufacture of the CPU is likely to result.

So you can still go out and buy a computer - but the market is now more mature, more sophisticated, much thicker in jargon and more fiercely competitive and cost-conscious.

Frank Booty is editor of Systems International.



As the computer industry has matured, so the jargon words and selling channels have become more complex.

The show for those who sell

The Trade Show is a must, says Andrew Thomas

THE second Computer Trade Show opens its doors at the Wembley Conference Centre next Tuesday. But this isn't just another computer show. It's the one UK exhibition aimed squarely at the people involved in the marketing of computers.

More than 50 companies will be at Wembley, showing micros, minis, word processing, software, components, peripherals and supplies. The Computer Trade Show doesn't aim to attract members of the public, but concentrates instead on the quality of its visitors - people who want to see and discuss products which they might take on and sell.

Admission is free on completion of a registration form, and the show runs from Tuesday 13 to Thursday 15 March. Opening hours are 08.30-17.00 on all three days. Nearest stations are Wembley Park and Wembley Hill, although this is one show which you can drive to with confidence - there's car parking for 5,000.

Amongst the exhibitors we find ACS, sharing a stand with Roland DG for the first time, showing a low cost (£132) graphics design package called Four Point Graphics, and ESS 2D, a CAD package featuring many of the facilities of mainframe systems but at low cost.

The package runs under PC-DOS or MS-DOS and can drive plotters of up to A0 in size. An A3 plotter, the DXY-800, and the Roland range of colour and monochrome monitors will also be on display.

Baydel is showing four new DEC-compatible systems and a streaming tape controller. The SJ14 and 15 use DEC's latest Micro-J processor chip and feature a minimum of 512Kbyte of mainstore and eight serial ports. The SJ14 has 40Mbytes of Winchester and 45Mbytes of tape storage for back-up. Operating systems supported include RT11, RSX-11M, TSX plus and Unix.

Computers is launching its new Lynx Laureate small business system, a CP/M compatible machine in the under £1,000 price bracket. This new UK machine is developed from the 48K and 96K Lynx home computers.

Alongside the Tatung VT4200 terminal, which emulates no fewer than 11 popular VDUs, Data Design Techniques is exhibiting its new Stacpac multibus system, high performance 68000-based system featuring colour graphics and the Uniplex System III implementation of Unix.

Data Efficiency has a new range of 12-inch monochrome monitors from Kaga/Taxan along with two new near letter-quality printers from the same stable, while on the General Automation stand, the Zebra family of Pick-based micros, ranging from the one to four user 750 to the 50 user 5500 will be on show.

One of the more familiar names at the show is that of Honeywell, in the guise of Honeywell Information Systems Italia, which is showing the first model of a 132-column, 150 cps printer aimed at the IBM-PC user. Features include 50cps correspondence quality and a 36x16 matrix.

Husky Computers, noted for its rugged micros which have found favour with the military, is looking for value-added dealers to distribute its new Husky Hunter, a CP/M hand held machine.

Husky is particularly interested in talking to dealers which have developed software for vertical market applications which could take advantage of the Husky's portability.

Mellordata, one of the four authorised Televideo dealers in the UK, will be demonstrating the new personal terminal, alongside products from Datamedia and Touch Technology, for which it is the sole UK distributor.

Two new micros from Hong Kong-based Rabbit Computer, the Wrap-Bit II and III, are on show, boasting low profile keyboards and IBM-PC, PCjr and Apple II compatibility. Rabbit promises a brand

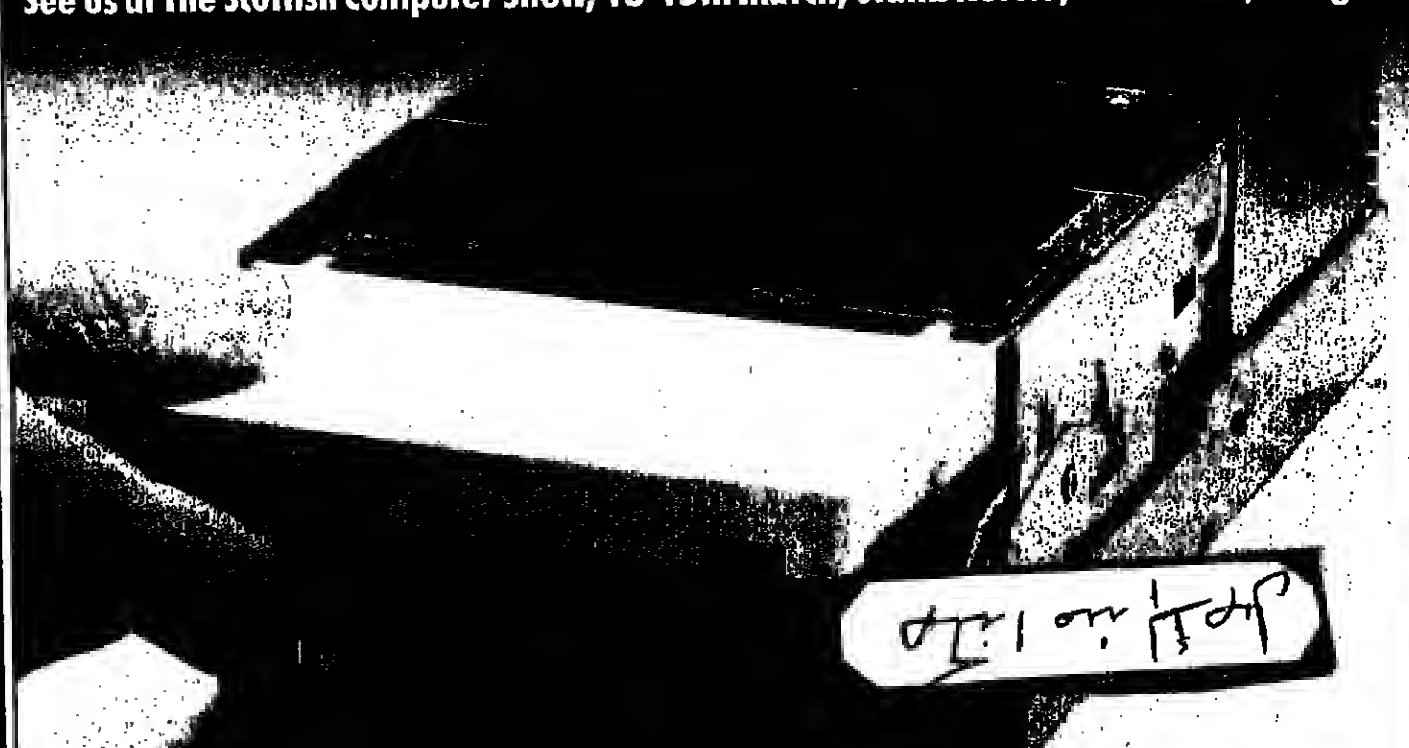
new piece of hardware for launch at the show, aimed at the executive portable market.

Unix III appears once again on the SGS-Ates stand. The Samson is a desk top micro-mainframe bridge with demand-paged virtual memory, dual bus design and intelligent communications controllers. A wide range of applications packages and high level languages are supported.

STC Business Systems is showing the ITT-developed Xtra, featuring IBM compatibility. STC claims that virtually all the software and peripherals available for the PC and PCXT can be supported, but that the machine carries a smaller price tag and a higher margin for dealers than the IBM counterparts.

The Show is at the Wembley Conference Centre, March 13-15.

See us at The Scottish Computer Show, 13-15th March, Stand No. A6, Kelvin Hall, Glasgow.



WINCHESTER.

Newbury Data's new 5 1/4" Winchester has two 'half-high' discs: one fixed, one removable. Which effectively means it can slash the access time you get with floppy based systems. And also makes it a lot cheaper and more reliable than Winchester with tape cartridges. The Newbury Data 505 Disc Drive provides mass storage, data portability and backup in one far superior device. It combines proven technology with design reliability. Total capacity is 13.5 M/byte (5 + 5 formatted). And the space-saving concept uses only one of your front panels - unlike other combinations which use two. The 505 has a unique retractable head that never touches the disc. And there's also a self-sealing air system that prevents possible contamination. In fact, there is no preventative maintenance whatsoever. Other features include: Embedded servo MTBF 8000 Hrs, Daisy Chain capability, Industry Standard Cartridge with easy front loading. Ring or write now for further details.

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MIDLANDS SALES & SERVICE: 1ST FLOOR OFFICES, TIVOLI CENTRE,
COVENTRY ROAD, BIRMINGHAM B26 1AJ, (021) 707 7170

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OEMs

Mystery of the favoured

Dave Madden explains the success of Convergent Technologies

THERE were raised eyebrows last month when American Telephone and Telegraph signed a \$200 million deal with a five-year-old Californian company. But there need not have been: the company was Convergent Technologies, which even in Silicon Valley, is viewed as something of a phenomenon.

In the last year, Convergent, led by its flamboyant founder-president Allen Michels, has pulled in business that adds up to some \$2 billion from a customer list that reads like the NCC catalogue.

Convergent is fast becoming the industry's favoured mistress. Everyone is going to it for what they could probably get at home, and the fundamental question is "Why?"

The company manufactures a range of workstations and it acquires exclusively to OEMs. But as David Johns, managing director of British micro-maker CPU Computers, asks in some bewilderment, "Why do the likes of Burroughs and NCR queue up for Convergent kit - which is based on fairly standard components - when they

also compete in the marketplace?"

The remarkable thing about Convergent's progress is that the company is not merely imitating what DEC did in the minicomputer OEM market 10 years ago. The senior computer companies, with their pride and their resources, never felt the need to go to DEC for strategic new products, but that is exactly what is happening to Convergent.

According to Bob Groves, Convergent's vice-president, international sales, it has been the inability of the traditional computer manufacturers to react to changes in the marketplace that has given Convergent its chance.

"Many of our customers had their own office systems products in development, but they had also got a salesforce in the field screaming for products, and when their own systems looked as if they would be late, then they came to us to fill the gap," says Groves. "They knew that they could get our product to their customers."

David O'Brien, Burroughs' director of sales and marketing in



GROVES... "Our customers know that they can get our product to their customers."

the UK, says: "It is really very simple. If you look at the spread of products from any one organisation, it's far too wide for any company to fund and develop. We address particular market sectors, and in the final analysis, what we are providing is a service rather than the product."

"Once you have made that decision to look at other sources, the beauty is that you can go for the best in the market."

Groves contends that whilst Convergent is in nominal competition with Burroughs, it does not necessarily compete directly with Convergent kit.

"Burroughs aims our workstations at its own customer base, NCR took the AWS specifically for word processing, Gould uses Convergent kit as the front end to very large systems," he says, though he admits that there will be an overlap amongst its growing number of telecommunications customers.

This exclusive reliance on OEM

customers requires its own disciplines. Michels has said that "the worst crime that we could commit, aside from shipping products of poor quality, is to embarrass good people at good companies."

A hitch in production, whether of its own making or not, could compromise the company with big customers. And where Convergent is particularly exposed is over the availability of components. Both its N-Gen and Megaframe have Intel iAPX 80186 inside it, and that chip is in notoriously short supply.

Convergent says that it has stock of 70,000. The company is Intel's biggest customer after IBM and, says Martin Lippmann, UK sales manager, the relationship between the two is "close".

There are signs that Convergent is nervous. Last month, in Phoenix, Arizona, the company showed its latest offering - the Miniframe. Its 24 salesmen and selected prospects were told that this product was available for immediate delivery.

The significance of this is that the machine is a single CPU version of the Megaframe, using the same virtual memory, Motorola 68010, but without the troublesome Intel processors.

Convergent said at the turn of the year that it would ship N-Gen with an 8086 in place of the 80186 as a stopgap. But US reports suggest that most of its customers prefer to wait for the system proper and that Burroughs is putting back the launch of its N-Gen product from this quarter to next.

Another consequence of the way Convergent does business is that the demand for new products is voracious. This has long been a fact of life for Convergent. As a start-up company it was fast off the blocks with these very lucrative and prestigious deals. Burroughs, NCR and Thomson-CSF.

But to win that business, Michels had to gamble. Not only did we trade part of his company, each of those deals gave the OEMs warrants to buy Convergent stock at fixed prices - but also options to manufacture its kit once they had exceeded a pre-set minimum purchase.

Burroughs was set to activate its agreement and get its B20 made in Japan by Kokusai Electric, when Convergent flashed its new N-Gen product, and Burroughs forgot about its plans.

This has compelled Convergent to develop at a rate that its competitors - Aldor, Fortune, or Future Technology Systems, for example - can barely envisage.

Yet at the same time, Convergent's first generation machines are still viable. Indeed, Groves says that the AWS is still going out at 350 per day, and looks good for another 12 months.

Of course, it is a dangerous game to play. N-Gen and Megaframe were the worst kept secrets in the industry, and sales of AWS and IWS suffered accordingly. "We shot ourselves in the foot with N-Gen," says Groves.

This compulsion to produce new products colours the company. It is reflected in a somewhat unusual corporate structure. Mi-

The product line

CONVERGENT'S range now comprises two distinct generations. Its first product was the Integrated Workstation (IWS), built around Intel's 8086 processor, with another to handle graphics. In 1981, it produced a lower-end Applications Workstation (AWS) using an 8088 chip. 1982 saw the AWS Turbo colour graphic workstation. These microa were similar to Burroughs B20 and NCR's Workstation.

This new generation, which should contribute 90% of the company's earnings this year, includes N-Gen, an 80186-based workstation. The attraction for prospective OEMs is its adaptability and modular, building-block construction, with components delay-chaining on to the CPU. It is due to appear as the Burroughs B25.

chels sits above divisions which represent lines of business.

For example, Distributed Systems handles all the workstations - IWS, AWS, N-Gen; Portable Computing handles just Workstations; and Data Systems looks after Megaframe and Miniframe.

Each division has its own manufacturing, engineering, marketing, and financial functions. If a new business area emerges, the company adds a discrete division. So

the newly-formed Fourth Division is responsible for special products - that is AT&T.

Both Ads and Pick are in the pipeline, while Convergent has started a third party programme, compiling a catalogue of software that will run on Convergent kit.

Convergent is the definitive OEM supplier, Michels says that concentrating on OEM business allows the company to reach "the broadest range of users in the shortest possible time".

The client list

CONVERGENT Technologies boasts over 100 OEM customers. In the US, that client list includes: Automatic Data Processing (ADP), Atlantic Richfield, Burroughs, C-3, Datapoint, Gould-SEL, NCR, Prime, Rolm, Raytheon, Storage Technology and TRW.

But the two deals, signed in 1983, which threaten to prove most significant for Convergent are with Motorola and AT&T.

Bob Groves says that the AT&T development would produce "unique" products, but that not even Convergent's other divisions really know what the Fourth Division is up to - though he reports that "AT&T loves the way we have decomposed Unix for the Office".

Office Unix is central to Motorola's interest, too. Its information systems division, formed from Four Phase and Codes, has signed a three-year \$250 million deal for the Megaframe and N-Gen.

Convergent's largest confirmed deal in Europe, exclud-

ing its arrangement with Bull, which was a renegotiation of the Thomson contract, is with Plessey. Plessey Office Systems is in for \$30 million worth of N-Gen, which it intends to incorporate into its IDX private digital exchange system.

Other UK customers include Star and Zygol Dynamics. Groves expects GEC to market Convergent kit in the UK. Its US subsidiary A. B. Dick has already signed a \$60 million contract, and Convergent hopes that GEC will do a separate deal here.

Convergent became a public company when its shares began trading over-the-counter in May 1982 in New York. Its career has been, to say the least, interesting. From an all-time high last June of \$40, its share price slid to \$17.75 in October, after it reported a fall in net-income of 20% in the third quarter of 1983 from a year earlier.

The company does not contradict forecasts that its sales should reach \$400 million in the current fiscal.

	1980	1981	1982	1983
Profit (\$ millions)	3.365	.777	11.9	14.9
Sales (\$ millions)	351	13.1	96.5	163.5

OEMs

OEMs make sales that the others miss

The OEM market is on the up and up. John Aczel dissects the statistics

THE market for OEM products is booming and overall sales are rising markedly in this sector. In certain areas, demand is doubling in value, and is being helped by the buoyancy of the microcomputer sector.

Unfortunately, there is no precise definition for OEM, particularly for statistical purposes. Nevertheless, it can be defined as a method of distribution by a third party, which involves added value in the form of specialised software or by extending the computer system in some way.

According to Stuart Houghton, UK manager for OEMs for Digital Equipment, this method of selling is a very useful one for many computer firms, as it assures rapid sales of certain types of hardware. Houghton says that OEM reaches "the parts that other forms of selling cannot reach" (in paraphrase a well-known advertising slogan for beer).

In the case of DEC, OEM is of particular significance, as it is believed to represent at least 40% of total sales of the group. A growing proportion is sold to the technical sector, and is used in defence systems and electronic products of various kinds, such as radar. The commercial side is also of great importance for DEC, especially for marketing small business systems, particularly minis and micros.

In the US, OEM has been expanding rapidly over the past few years and most of the big manufacturers of computers, including IBM, DEC and Honeywell, are giving greater importance to OEM sales in promoting their products.

A number of factors help to explain the growth in demand for OEM products, but one of the main ones has been the introduction of cheaper hardware equipment, particularly microcomputers.

This has opened up the market for computer systems among smaller users and, in many cases, computer manufacturers have found it more preferable to market their micros through third parties, rather than getting themselves involved in selling directly to a wide range of firms and organisations, which normally have very specific requirements for their processing needs.

In addition, the market for mini and microcomputers has become much more specialised and is now operating on a vertical basis in most cases.

Statistical information about OEM sales is difficult to obtain and the official sources do not break them down in any meaningful way. Moreover, there are a number of problems in defining

this sector of the market.

According to various industrial sources, however, it is believed that the size of the market for OEM sales - that is, including both the software and hardware components - is running at around £200 million per year. In the past 12 months the growth in demand for OEM products has been quite staggering and at present it is reckoned to be increasing at over 50% for the sector as a whole.

One way to analyse the market is to look at turnkey projects, for which billings are published for the major computer services companies.

During the first half of 1983 billings for turnkey projects amounted to over £86 million and represented nearly 20% of total sales by the computer services sector.

This proportion has been rising rapidly in the past two years. One can make some adjustments for the figures prior to 1983, but any such corrections for the rise in the sample has to be treated with considerable care. If an adjustment is made to the previous figures covering the first half of 1982, billings for turnkey projects in that period amounted to between £45 and £50 million, and, quite clearly, this growth has been quite remarkable, even allowing for some of the changes which have occurred in the sampling procedure.

The growth in micro sales has been very sharp and out of total turnkey billings they now account for about 20%. This proportion is likely to rise as service companies concentrate on the micro side even more vigorously than before.

The private sector has been at the forefront of the growth in terms of turnkey billings and represented nearly 75% of the total. It is believed that on an annual basis turnover in industry and commerce has more than doubled in value compared to the corresponding period of 1982.

Within the various sub-groups it is quite clear that the added value aspect has played a leading part in promoting turnkey projects. In particular, software implementation (including the invoicing for systems analysis, systems design, programming and other forms of implementation) as well as software products (which includes the invoicing for sale or licence of software items) have been of great importance, particularly in the private sector.

In addition, the hardware element has also grown appreciably during the past 12 months.

The breakdowns for the turnkey billings for the major sectors are summarised in Tables 4, 5 and 6.

	2nd Quarter 1983	1st Quarter 1983
Software implementation	£m 10.8	£m 9.6
Software products	5.4	6.1
Hardware supply (value of less than £15,000)	10.8	4.8
Hardware supply (value of £15,000-£50,000)	6.9	7.9
Hardware supply (value of more than £50,000)	9.3	14.8
Total	43.2	43.2

Table 2 - Breakdown of turnkey billings by type of product.

	2nd Quarter 1983	1st Quarter 1983	2nd Quarter 1982
Public sector	£m 4.3	£m 5.3	£m 2.5
Private sector	32.3	29.4	14.9
Overseas clients	3.4	5.2	1.6
Associated clients	3.2	3.3	0.8
Total	43.2	43.2	19.8

Table 3 - Breakdown of turnkey settings by type of client.

but, unfortunately, straight comparisons with the corresponding period in 1982 are not possible due to the significant changes which have occurred in the sample during that period.

Some of the figures are also relatively small, and contain a significant margin of error, so that they have to be treated with considerable circumspection. Nevertheless, these breakdowns are useful in assessing the importance of the different components within the public, private and overseas areas.

It is difficult to know the exact size of the market for OEM products, but if one relies on the official statistics for turnkey billings, it is estimated that in 1983, the size of the sector was between £180 to £200 million.

Hardware supplies have been also of great significance, particularly for microcomputers, and their value is believed to have also grown markedly, especially for business systems under £15,000.

For 1984, it is likely that the boom in OEM sales will continue unabated, though any projections for demand are likely to be off-target due to the sharply changing nature of OEM products.

On a conservative basis, however, overall demand is likely to rise to over £250 million, and this market will provide opportunities for considerable expansion, not only for software and service companies but also for the leading computer manufacturers operating in the mini and micro field.

John Aczel is a freelance journalist.

	Billings for turnkey projects	Total billings for computer services
1982	£m	£m
1st Quarter	17.4	169.0
2nd Quarter	14.8	164.2
3rd Quarter	20.5	175.1
4th Quarter	23.1	186.3
1983		
1st Quarter*	43.2	237.2
2nd Quarter*	43.2	231.0

* Figures boosted by bigger sample

Table 4 - Trend in billings for turnkey projects.

	2nd Quarter 1983	1st Quarter 1983
Software implementation	£m 1.3	£m 1.7
Software products	0.6	N.A.
Hardware (less than £15,000)	0.3	0.7
Hardware (£15,000-£50,000)	2.1	0.6
Hardware (more than £50,000)		N.A.

Table 4 - Turnkey billings for public sector.

	2nd Quarter 1983	1st Quarter 1983
Software implementation	£m 3.9	£m 5.7
Software products	3.9	3.7
Hardware (less than £15,000)	10.3	3.4
Hardware (£15,000-£50,000)	5.2	5.4
Hardware (more than £50,000)	6.0	11.2

Table 5 - Turnkey billings for private sector.

	2nd Quarter 1983	1st Quarter 1983
Software implementation	£m 0.6	£m 1.1
Software products	0.5	-
Hardware (less than £15,000)	-	0.1
Hardware (£15,000-£50,000)	0.6	N.A.
Hardware (more than £50,000)	1.7	1.5

Table 6 - Turnkey billings for overseas clients.

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Meet General Automation's Zebra family - the first range of micros, minis and superminis to use PICK.

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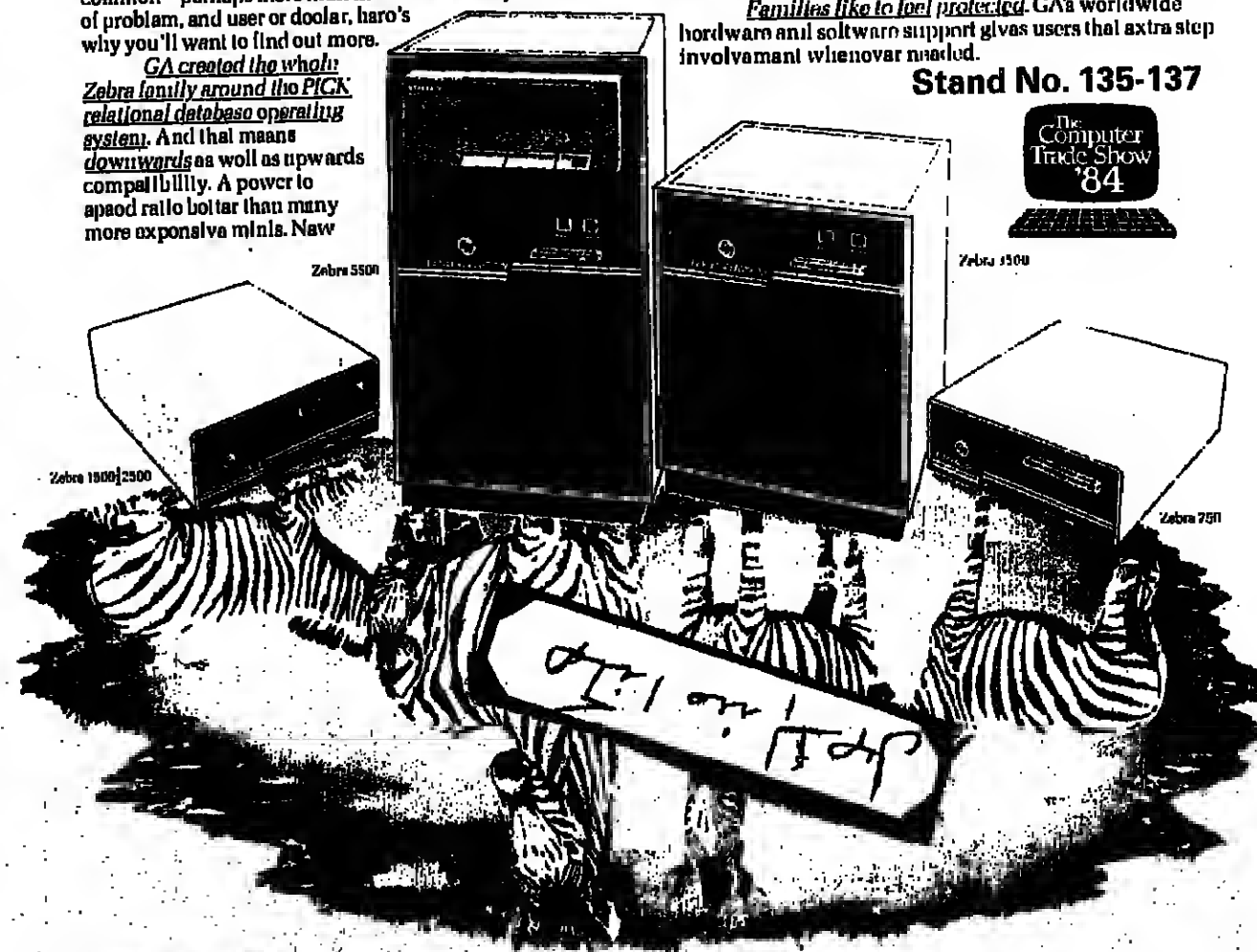
standards of ease of use and friendliness for all users.

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Autoprocess consists of a 35mm camera mounted in a hand-held hood.

Hand-held hood aligns camera

COLOUR slides of information displayed on terminal screens can be made using Graphic Display Systems' new GDS-1000/35mm Autoprocess.

The system consists of a standard 35mm camera mounted in a hand-held hood. The hood correctly aligns the camera to the display and eliminates screen reflections caused by ambient light. It thus eliminates the need for tripods, blackouts and so on. The company says the system can be used by people with no technical or photographic experience.

The system uses the new 35mm film from Polaroid. It can be developed in minutes in the desk-top Autoprocess.

Three films are available: a colour film for high-resolution

Display of eight colours

A COLOUR graphics hardware and software package for most 16-bit microcomputers has been launched by Magus Computer Systems.

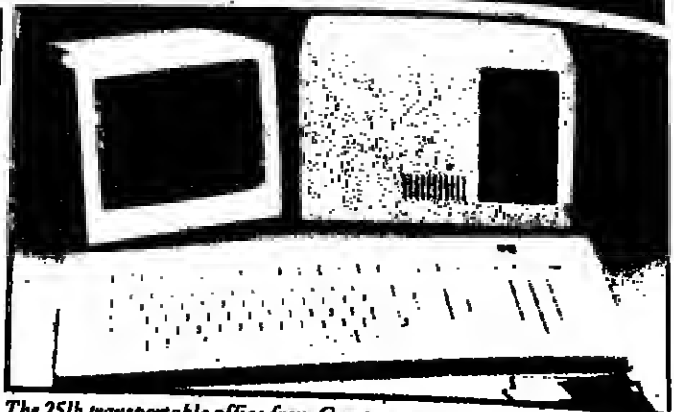
The system consists of an external box, an interface card for the microcomputer and a colour monitor. The interface is not needed for the IBM Personal Computer and Future FX20.

The resolution from the package is 768 picture elements by 512. Eight colours can be displayed from a palette of 4,096.

On the software side modules include a graphics editor, with graphics functions called up from the keyboard. A built-in symbol generator enables users to create their own libraries of graphics symbols.

A business graphics module produces bar charts, line graphs and pie charts.

Magus Computer Systems (CW), First Floor, 4 Cheap Street, Bath BA1 1NE. Tel: (0225) 60965.



The 251b portable office from Compucorp.

Office range extended

THE OmegsMite and the OA3200, are extensions to the Compucorp office automation product range.

The OmegsMite provides full Omega word processing, CP/M compatibility and an OmegaNet local area network interface in a transportable package. The OA3200 is a cluster controller for the range of Compucorp workstations.

OmegsMite weighs under 25 pounds and with its amber screen and full-size professional keyboard can be packed into its own carrying bag for transport to a branch office. It runs Omega word processing, Compucorp's own MultiCalc

spreadsheet package and DBMS database software.

In its standard configuration OmegsMite will run CP/M.

The OA3200 processor provides a clustered alternative to an OmegaNet local area network with its ability to support up to 32 devices operating under a Compucorp version of the Xenix operating system. The second application of the OS3200 is as a powerful file, mail and print server supporting up to four connected Compucorp OmegaNet networks.

Compucorp (UK) (CW), Cunningham House, Westfield Lane, Kenton, Harrow HA3 9ED. Tel: 01-907 0198.

Portable laser bar code reader

INTERMEC UK has announced a portable laser bar code reader based on the latest CMOS technology. The Model 9420, intended for use in industrial, commercial and military applications, is provided with Intermecc's Interactive Reader Language (IRL), a software package which simplifies the development of custom application programs.



The 9420 laser reader.

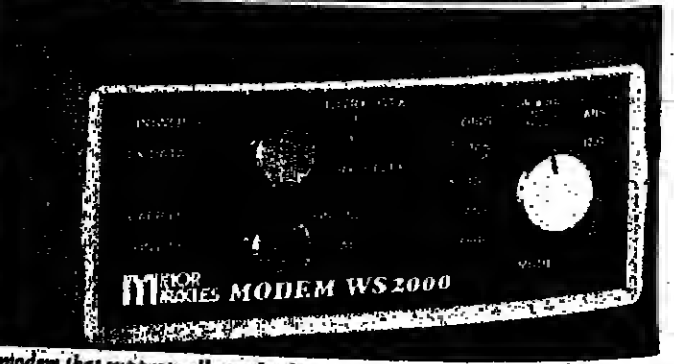
The reader has a two-line 32-character display which allows the simultaneous viewing of operator prompts and scanned data. The display is easily read in direct sunlight, and a back-lighting feature allows reading even in total darkness, according to Intermecc.

The design of the alphanumeric keyboard is such that error-free keying is possible even if the user is wearing industrial gloves. The keys are large and wide spaced, and there is an edge-rim on each to prevent mis-keying through finger slip.

The use of CMOS means the unit is light in weight and can run a full eight-hour shift on its internal batteries. CMOS RAM allows data retention while the unit is switched off.

The laser window is recessed to prevent damage and the housing is sealed to prevent ingress of rain.

Intermecc UK (CW), Studio House 215 Kings Road, Reading, Berks. RG1 4LS. Tel: (0734) 67331.



A modem that supports all standards.

A modem for all standards

ALL major world communications standards are supported by the new £99.95 WS2000 modem from Minor Miracles.

The unit can be switched between 300 baud full-duplex, 600 baud half-duplex, 1,200 baud half-duplex and 1,200/75 baud full-duplex and supports Bell standards for the US market and CCITT standards for Europe.

These standards include Bell 103/113/106, Bell 202, CCITT V21 and V23, and CCITT V24 handshaking, V28, V29, V42, V42bis, V42ter, V43, V43bis, V43ter, V44, V44bis, V44ter, V45, V45bis, V45ter, V46, V46bis, V46ter, V47, V47bis, V47ter, V48, V48bis, V48ter, V49, V49bis, V49ter, V50, V50bis, V50ter, V51, V51bis, V51ter, V52, V52bis, V52ter, V53, V53bis, V53ter, V54, V54bis, V54ter, V55, V55bis, V55ter, V56, V56bis, V56ter, V57, V57bis, V57ter, V58, V58bis, V58ter, V59, V59bis, V59ter, V60, V60bis, V60ter, V61, V61bis, V61ter, V62, V62bis, V62ter, V63, V63bis, V63ter, V64, V64bis, V64ter, V65, V65bis, V65ter, V66, V66bis, V66ter, V67, V67bis, V67ter, V68, V68bis, V68ter, V69, V69bis, V69ter, V70, V70bis, V70ter, V71, V71bis, V71ter, V72, V72bis, V72ter, V73, V73bis, V73ter, V74, V74bis, V74ter, V75, V75bis, V75ter, V76, V76bis, V76ter, V77, V77bis, V77ter, V78, V78bis, V78ter, V79, V79bis, V79ter, V80, V80bis, V80ter, V81, V81bis, V81ter, V82, V82bis, V82ter, V83, V83bis, V83ter, V84, 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PRODUCTS

Typewriter keys access screen logically

HERMES Precisa (UK) has launched the top-ironic 21 and top-ironic 51 typewriters with 24 line x 80 character screens.

Typewriter/screen systems need to access the screen from the typewriter keyboard, which means that certain keys have more than one function. As with all Hermes memory typewriters, these additional key functions have been designed to operate in a logical manner, eg key E is used for edit; M for mark; T for transfer; C for copy; etc.

Screen memory capacity of 32,000 characters is available on both new video units. The top-ironic 51 retains the 24in. microdisc, though the disc reader has been modified to read and write in a double-density manner, giving each disc 32K of storage.

The top-ironic 51 allows the typist to use the system in several modes — as an ordinary typewriter; as a memory typewriter with 101 memory segments; as a traditional external storage type-



Top-ironic typewriters can be used in several modes.

writer; or as a typewriter with sophisticated folder/document storage via the screen. Several discs can be read into the screen unit, each disc accounting for a "folder"

containing one or more documents. The top-ironic 21/Video typing system costs £1,695 plus VAT, and the top-ironic 51/Video is

priced at £2,795 plus VAT. Hermes Precisa (UK) (CW), Hermes House, Ipswich Road, Colchester, Essex. Tel: (0206) 845251.

Move up from Fortran with ease

COMPUTER Technology Limited (CTL) has introduced Momentum Fortran 77, an advanced implementation of the ANSI Fortran standard. Momentum Fortran 77 fulfils the complete ANSI Fortran standard X3.9 (1978), with the exception of an amended backspace facility. It offers facilities for programs with segmented structures, and an efficient and flexible system of compiling and listing.

The compiler allows for segments of up to 32K, and enables the user to segment a program as required, while supplying the additional option of automatic segmentation. Data access has been extended to allow access to the full range of DMS file handling facilities, and Fortran 77 programs can be used with the DMS fast recovery option.

A conditional compilation feature enables a debugging code to be placed in programs for testing, while allowing it to be excluded from the final compilation. To complement this, the compiler can optionally embed trace routines in the generated program, so that the logical flow through the code can be followed.

The compiler can also optionally generate map and cross reference listings, and these facilities allow for quicker and easier testing of Fortran 77 programs.

The compiler also allows users to have integer within Fortran programs held in either one or two words, which gives high precision without causing a performance degradation for simpler programs.

The compiler can generate code to exploit fully the features of CTL's Momentum 9000 computers with extended architecture. This results in considerable performance improvements, particularly for real, double precision and double word integer arithmetic.

There is also an option to run the compiler in a Fortran IV mode, which allows it to compile Fortran programs written for the Momentum Fortran IV compiler. This lets the user make in easy progression from a current Fortran system to a Fortran 77 system, while giving immediate performance gains if the Momentum 9000 extended architecture.

Computer Technology Ltd (CW), Hempstead House, Solihull Hill, Hemel Hempstead, HP1 1DP. Tel: (0442) 3288.

PRODUCTS

Raster range aims at higher education

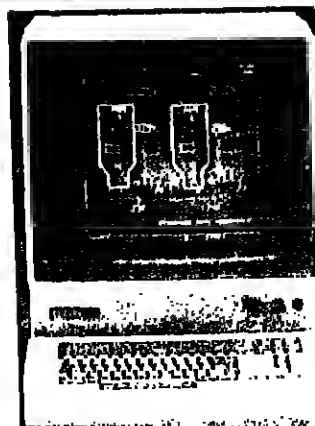
IMLAC International has announced a complete range of raster graphics display systems to complement its Series 11 vector refresh terminals.

The new range will be promoted in the university and higher education sectors, and is to be known as Imlac-Scapa. It includes a range of both monochrome and colour terminals all offering features such as vector generators, selective erase and 4096 x 4096 addressable points with varying display resolutions.

Most application requirements are served by the IS741, a 15in display with 512x512 pixel resolution. The IS770 offers a 15in screen of 640x480 displayable points with up to four graphics pages and is capable of true alpha-numeric operation with four character sets and a range of features such as underscore, blinking, inverse video and selectable scrolling. Higher quality requirements

are met by the IS1020 featuring a 1024x1024 interlaced display. For colour there is the IS550 for low-cost interlaced 640x480 point viewing on a 14in screen and the IS870 on a 20in screen. Both terminals feature 16-colour, two-page performance which will draw at a microsecond a point in absolute, incremental and point to point mode.

At the top of the range is IS1096 which produces images on a 1024x780 display with up to 16 colour shades from a palette of 4096 possibilities. All the Imlac-Scapa terminals are micro-driven and have considerable internal intelligence in their firmware. They can be addressed down line or through the standard slimline detachable keyboard. A light pen and tablet are available as optional input tools. In workstation configurations, a monochrome one-up and two-up 84x84 dot per inch graphics printer can be



The IS850 from Imlac.

supplied while for the colour systems, screen images can be presented on eight-colour hard copy.

With the addition of the Imlac-Scapa products, Imlac International now claims to offer the widest choice of all the CAD/Research applications graphics terminal vendors. The Amesbury-based company caters for needs ranging from 512 point raster to 2048 line vector at prices from £1,800 to £15,000.

Most software is available for developers wishing to link their applications program through G-LIB (raster) and RGS (vector). Imlac International (CW), Imlac House, 17 Chesham Road, Amersham, Bucks HP6 5HN.

Terminal with lightweight keyboard

THE VT220, a monochrome video terminal from the VT200 range, the latest family of monochrome and colour terminals by Digital, is now available from Rapid Terminals.

The VT220 features a swivel-tilt 30.5cm non-glare video screen with an 80 or 132 column by 24 line display, connected by a 1.8m coiled cable umbilical to a new streamlined keyboard weighing 2.04kg.

The lightweight keyboard can easily be placed in an ideal working position and the 30mm key height reduces typing fatigue, says Rapid Terminals. At each switching on the terminal automatically performs a self-test and gives an audio/visual assurance.

The board layout contains 105 keys and consists of a standard qwerty keypad, with a 16-key editing keypad to the right and an 18-key numeric keypad beyond that. The whole board measures 53.3 x 17.1 x 5cm.



The VT220 has a keyboard weighing 2.04kg.

The VT220 is equipped with VT52/VT100 emulation, built-in serial printer port, and 1.5 far-out repeat instant controls. In addition, the terminal features international capabilities including multinational character set, keyboard layouts available in 15 languages and a universal power supply switch selectable.

The VT220 is designed for data communications and can operate at speeds up to 19.2K baud. It supports full duplex asynchronous communications with ten possible transmit/receive speeds.

Rapid Terminals (CW), Rapid House, Denmark Street, High Wycombe, Bucks HP11 2ER. Tel: (0494) 26271.



Momentum Business System runs on CTL's Momentum 9000.

Business system gives Momentum to users

A NEW business software system, the Momentum Business System (MBS), from UK software house J. G. Systems, offers users a complete suite of fully integrated business software running on CTL's non-stop Momentum 9000 minicomputer range.

According to J. G. Systems, the Momentum Business System combines for the first time the cost advantages of packaged program products, with fully integrated transaction processing and the extensive communications capabilities of one of the world's most advanced minicomputer ranges. The new system also offers the option of real-time non-stop processing and an easy upgrade path, starting from a two-terminal entry-level configuration up to the full power of CTL's dual processor

Model 33 superminicomputer running in excess of 100 terminals. Momentum Business System includes software packages for sales order processing, stock and purchasing, financial accounting, financial modelling, time recording, payroll, customer mailing and letters and a word processor called TVtype, as well as many other industry-specific packages.

The cost of the MBS system pack is just £2,000 for a single user system including two days' free training. The MBS package increment is £300 a VDU. The software is fully supported and the annual maintenance fee is 10% of the cumulative licence fee paid.

J. G. Systems (CW), Trig House, 77-81 High Street, Tring, Herts HP23 4AL. Tel: (044) 262 6671.

Using printers in telegraph

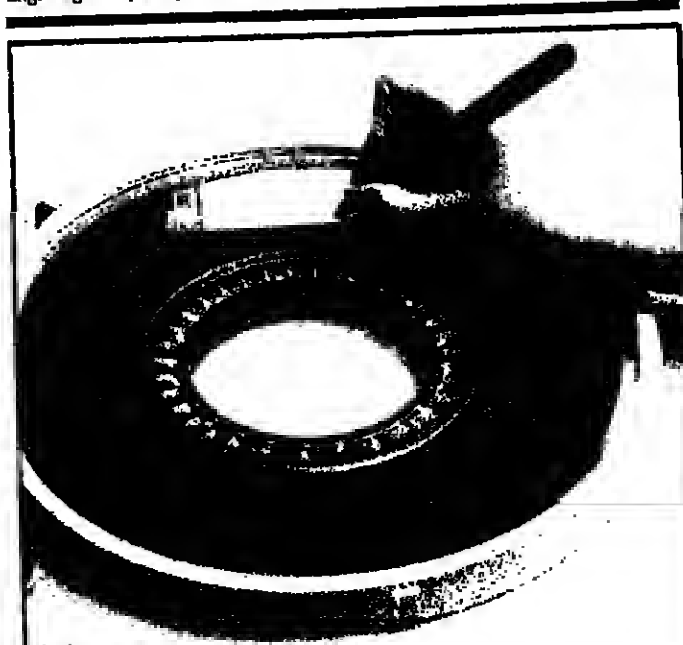
AN interface developed by Siemens for the PT88 printer will enable the printer to be used in five-unit telegraph systems.

The PT88 gives the user a choice of needle impact dot matrix print head or an ink jet head that is almost silent in operation, says Siemens. The new interface, the PIA No 1, enables the PT88 to be connected directly on a five-unit private wire telegraph connection or on a message switching or

similar system.

By use of special strap selection, speeds from 50 to 600 bauds can be accommodated. Line voltage/currents options from RS232 through to 80V 20mA are available.

The PIA No 2, available around July, will allow the printer to be connected to telegraph lines. Siemens (CW), Siemens House, Windmill Road, Sunbury-on-Thames, Middlesex TW16 7HS. Tel: (0932) 85691.



Butterfly Data Wipers from Wiggins Teape.

Re-usable data wipers

WIGGINS Teape Stationery is introducing a range of re-usable data control labels, marketed under the Butterfly brand as Data Wipers.

Designed for titling or labelling all magnetic media where the stored information is changed regularly, Butterfly Data Wipers are self-adhesive labels which may be wiped clean and used again. The labels are supplied with a special Wipers pen and also packed on to a backing card with instructions and details of the range.

When required, the written information is removed completely by applying a moist tissue — and new information substituted.

For use with disc cartridges, disc packs and magnetic tapes, there are plain or colour coded data control labels, file labels with boxes for supplying file number and data and yellow Hold labels to indicate semi-permanent information.

Wiggins Teape (Stationery) (CW), Grove Road, Chadwell Heath, Romford RM6 4XL, Essex. Tel: 01-590 7777.

Storage up, prices down

ZENITH Data Systems has announced enhanced storage capacity and price reductions of up to 13% for its Z100 range of desk-top microcomputers.

New models with increased storage capacity have been introduced to the Z100 range. The ZF-100-20 flexible disc system has a storage capacity of 1.28 Mbytes which doubles the capacity of existing flexible disc models. A new 11.7 Mbyte Winchester drive model with a back-up capacity of 640Kbytes is introduced.

Prices now start at £1,795, including a range of free space options. The ZF-110-22 low-profile flexible disc system with a storage capacity of 640Kbytes has been reduced from £2,376 to £2,295.

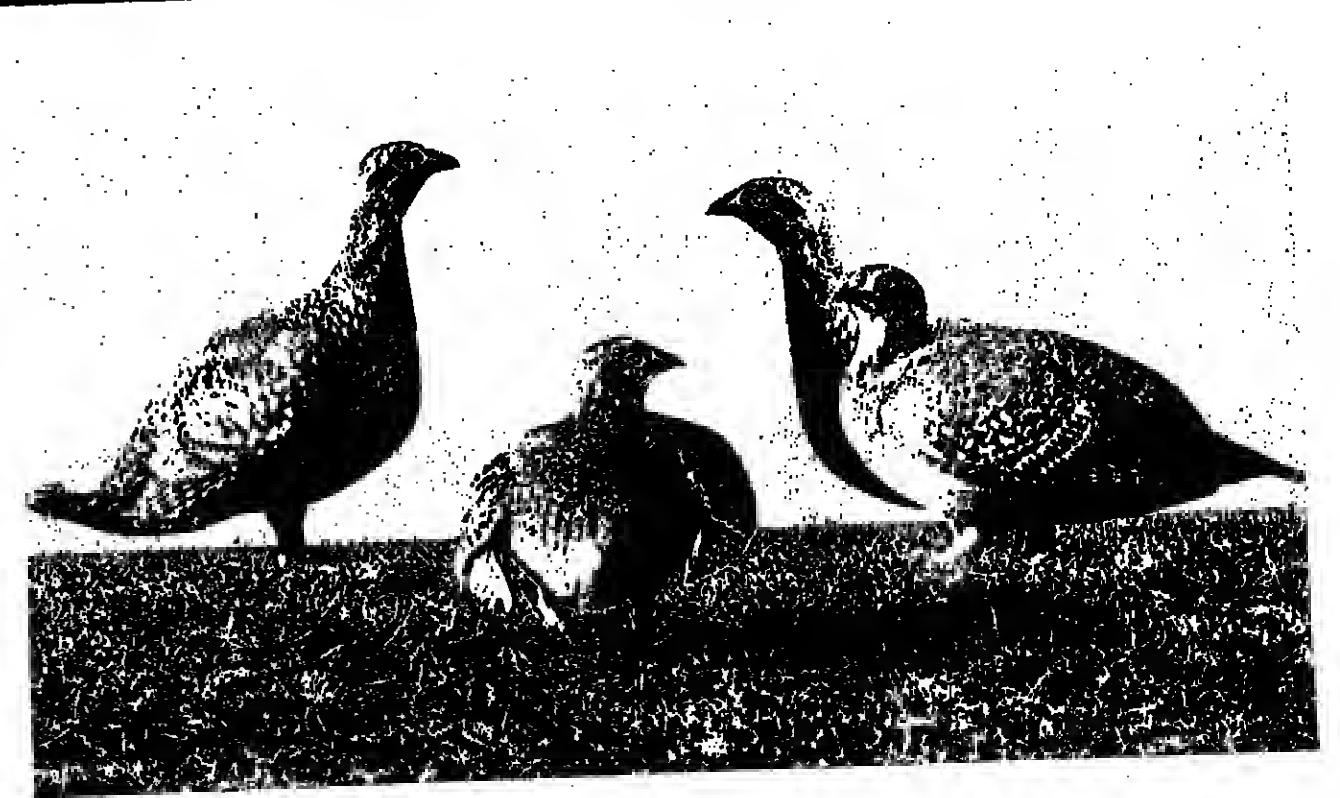
Zenith Data Systems (CW), Bristol Road, Gloucester GL2 6ER. Tel: (0452) 29451.

Laser-based data link

A LASER-BASED data link for outdoor applications which is claimed to have significant advantages over existing free space systems, has been developed by EEL.

Called Superlink, it returns high reliability figures over free space distances of up to 1km and has high bandwidth making it suitable for transmitting and receiving, in addition, to data and speech, CCTV picture signals and control information, says EEL.

The high bandwidth also enables the link to be configured for multiplexed data channels. Signals can be sent and received by either end of the link via 1km fibre-optic link. EEL (CW), Kings Building, Castle Street, Cowes, Isle of Wight PO32 6RH. Tel: (0983) 291515.



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Intel — the undisputed world leader in microprocessor VLSI have introduced a range of high performance 16 bit OEM microcomputer systems. Based on Intel's 'Open System' concept, System 310 offers OEM's a route to future applications and new markets through incorporation of industry standards such as MULTIBUS, 8086 and RMX. Four System 310 configurations for high speed real time applications and interactive multi-user commercial and technical environments are available from Comway.

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Vacancies exist for support programmers in the User Support Group. Support programmers are required to provide user support of the VM/CMS and of MVS/JES3. Duties include liaising with users, offering advice and guidance with problems, documentation, user education and implementing utilities. Applicants should have skills in Technical Communication, a broad knowledge of computer systems and some programming experience preferably in FORTRAN. Familiarity with VM/CMS or MVS/JES3 operating systems would be an advantage.

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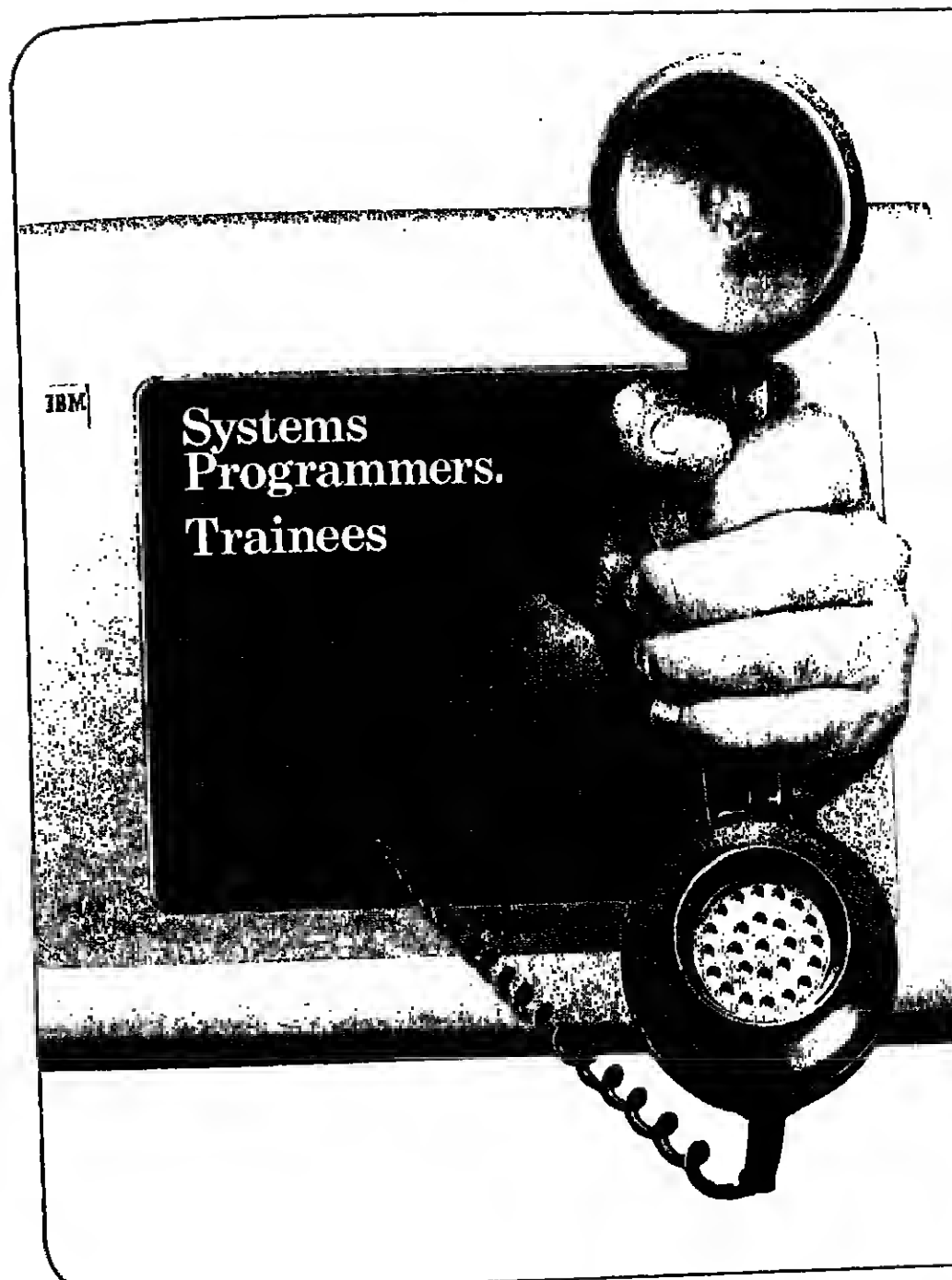
Higher Scientific Officer £7149-£9561

Appointment as a Higher Scientific Officer requires a good honours degree and several years' relevant experience. Some assistance with the expenses incurred in house sale/purchase may be available.

Contact: Recruitment Office, Rutherford Appleton Laboratory, Science and Engineering Research Council, Chilton, Didcot, Oxon, OX11 0QX, or telephone Abingdon (0235) 445485 quoting reference YN214.

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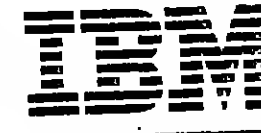
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Real-Time Software

CAREER OPPORTUNITIES

£9K to £15K neg.

NW England

The advent of information technology has created the need for highly advanced communications and message processing systems dependent totally on the quality, sophistication and innovation of system software. The opportunity to contribute to the development of future generation systems is currently being offered by a major international force in communications technology in the building of a new specialist team.

PROJECT LEADERS

Ref: - W/171

SYSTEMS ANALYSTS

Ref: - W/172

PROGRAMMERS

Ref: - W/173

The ideal candidates will be:-

- 23 to 40 years of age
- Qualified to BSc or equivalent
- Currently employed within a Real-Time software environment (either commercial or defence)
- Conversant with Block-structured high level languages (eg. PASCAL, CORAL) and operating systems such as CONTEXT or RSX11

Some experience of Assembler on minis or micros would also be an advantage but training in all areas will be offered to successful candidates.

You will be involved in challenging work incorporating multi-processing and distributed processor systems in message processing, Command, Control and Information systems and packet switching. The software development will be on VAX 11/780, PDP/11's and 8086's.

The benefits include an excellent negotiable salary and working environment with a full relocation package for the successful candidates with the opportunity to become an integral part of a special team developing tomorrow's technology.

For an initial and confidential discussion please call Bob Archibold on Newbury (0635) 33445 quoting the appropriate reference number or write in strict confidence to:-

ARCHIBOLD RAE CONSULTANTS LIMITED
(High Technology Search & Selection)

7, London Road, Newbury, Berkshire RG13 1JL.
Tel: Newbury (0635) 33445.

ARc

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(6198)

Computer Engineer £15,000 + package

DPCE's business is independent maintenance of computer systems. Our strength is the commitment, expertise and resourcefulness of our site engineers. Our success in providing single source site-based maintenance of total systems for such demanding users as British Airways, British Telecom, National Girobank and KLM, has made us the market leader in this field.

Due to expansion, we are looking for a Senior Engineer with in-depth experience of Prime computer equipment to join this fast growing company.

This is a key appointment offering exceptional career prospects. In line with the importance of the post we are offering a very attractive salary, company car and benefits package.

If you are interested in this vacancy, please write to Jeanette Sale, Personnel Officer, DPCE (UK) Ltd, 28/28 Market Place, Wokingham RG40 1FZ. Tel: (0734) 790703.

(6260)

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At Hill Briton we are doubly well qualified in software recruitment. Firstly we have built up a strong reputation in software recruitment by acting for a number of major clients - and by finding the right person for the right job. We are also a software house.

This means that we thoroughly understand the career requirements of Software Engineers - and can accurately match your skills with current vacancies.

Our clients are utilizing the latest generations of hardware, with advanced software and

development support products. We are currently looking for experienced Software Engineers to fill a number of challenging design, development, quality and managerial posts. A sound background in any of the following areas would be of interest.

- Graphics • Process Control
- Data Base Techniques • CAD/CAM
- Data Communications
- Real Time Applications
- Microprocessor Development Systems

Opportunities exist in a variety of industries including computer and electronic manufacturing, defence, oil and offshore service companies, as well as specialist software consultancies.

So, if you are interested in the opportunities we offer, we'll be more than interested to speak with you. Contact CAROL SUTHERLAND or BEN WILLIAMS and they'll tell you how you can apply your skills to some of the most innovative work in Scotland.

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Hill Briton

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(622)

PERSONNEL CONSULTANTS

Victoria Chambers, 42 Frederick Street, Edinburgh EH2 1EX.

your appointments register

Programmers

NCR IBM COBOL to £15K
Institution Banking London/H. Counties N. Eng.

COBOL/PL1/US/CICS/IMS to £13K
Commercial H. Counties Midlands Manchester

PROGRAMMERS to £12K
DATA/PL1 Borks

ICL/CODOL to £12K
Two years' commercial experience Notts

DEVELOPMENT PROGRAMMERS to £14K
CP/M + PC Herts

RPG 2/3 to £14K
Minimum one and a half years' experience Northants/Lancaster/London/N.E.

SYSTEMS PROGRAMMERS to £17K
MVS CICS Midx

BASIC/ASSEMBLER to £15K
Mainframe Computers London

MINIS to £12K
Commercial Applications Norwich/Croydon

APPLICATIONS PROGS to £14K
COBOL "C" and Unix London

Analyst/Progs

DEC to £15K
Industrial Applications Bucks

IBM 34/38/4341 to £15K
Local/Int'l Home Counties/Leicester

HP3000/280 to £14K
Assembler/Micro Processor Based Applications Midx

MS/DOS to £16K
"C" Datacomm experience Midx

Hardware/Support

TECH. SUPPORT MANAGER to £16K + CAR
IBM DOS/VSE CICS/IMS Kent

SERVICE ENGINEERS to £12K
DEC axil London

TECHNICAL SUPPORT to £12K
Pics Bucks/Coventry

OPERATION SYSTEM SUPPORT to £15K
Mainframe/Assembler experience Bucks

DEVELOPMENT ENGINEER to £14K
Video Terminal Manufacture Midx

TECHNICAL SUPPORT to £12K + CAR
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Sloangate

The Appointments Register

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Systems Analysts

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DATABASE Techniques Herts

CAD/CAM to £16K
Real time Modelling Man. Essex South West

IBM/BURROUGHS to £15K
Commercial Accountancy London/Surrey/Manchester

BASIC plus/PDP to £11K
Tunbridge Wells

IBM/ICL to £14K
Commercial Applications London/Midlands

ICL 2900 to £11K
COBOL Dorset

Software Engineers

CORAL/PASCAL/MASCOT/C to £15K
Communications Glos/H. Counties/Midlands/Blackburn

REALTIME to £15K
Experience in embedded Micro-Processor Systems and M.O.S. Devices Borks

MILITARY SYSTEMS/RADAR to £14K
Coral/Mascot Hants/Surrey/Essex/S. West

PDP/VAX/INTEL to £16K
High Level Assemblers In Derby/Surrey/London/Kent

FORTAN 77/ASSEMBLER to £16K
Coral/Mascot/APT/Communications/Avon

HP3000/INTEL to £12K
CAD/CAM/ATE Home Counties

REALTIME SOFTWARE to £16K
Defence/Engineering Bucks

Snr Appointments

INTERNAL SALES ENGINEER to £12K
Micro Development Data products, Logic and Data-comm Analysers Midx

SALES EXECUTIVES to £30K
Mainframe Nationwide

CONSULTANTS to £18K
CAD/CAM NATIONWIDE

SYSTEMS MANAGER to £15K
Networking Systems and Communications MODES Datapoint ARC Manchester

SALES EXECUTIVES to £20K
Personal computers/IBM Systems Surrey

MICROCOMPUTERS to £20K
Local Area Nets through Distributors and OEM's South

SOFTWARE SECTION MANAGER to £18K
Pascal/C/Microprocessor Essex/Midlands



CONSULTANT/TRAINER

£12-15K Plus Car

Sphinx in its first year of operation has made a remarkable impact on the mini-computer industry as the UNIX* Systems expert. Such is the growth of Sphinx and the demand for its products and services that first rate job opportunities are presented and excellent prospects are offered.

This particular opportunity will allow the selected candidate to develop a job dependent on his/her own skills. The Information Services Group, one of three Sphinx divisions provides training and advice on current and new software products to existing and potential UNIX users. You could join this Group of specialists if you can augment their skills with your commercial consultancy and/or training experience.

Candidates aged 28-35 should have experience of developing and presenting training courses and/or of sales support in a software orientated environment. A degree or equivalent qualification is desirable. Experience of UNIX based systems and C programming language would be a distinct advantage but training will be provided to a candidate who can demonstrate the ability to quickly assimilate these technical elements.

Please provide a curriculum vitae or call me, Phillip Rich the Consultant advising Sphinx on this appointment.

* Unix is a trademark of Bell Laboratories.



Phillip Rich, Clark Rich Associates Limited,
31 Peasod Street, Windsor, Berkshire SL4 1EA.
Tel: Windsor (07535) 51212

Clark, Rich Associates Limited

Personnel Consultants

RECESSION, WHAT RECESSION? MIDLANDS AND THE NORTH

PROGRAMMERS & ANALYST PROGRAMMERS £7.5 to £17.5K

Two of our clients, based in BIRMINGHAM and COVENTRY, are increasing their programming staff substantially, consequently at least ten people with varying experience are required by these two companies alone. If you are educated to degree level and have a minimum of two years' COBOL programming experience on mainframe equipment or if you have three years + of IBM COBOL, CICS and PL/I pick up the phone on your desk NOW, you could be worth more than you think!

SYSTEMS PROGRAMMERS PROGRAMMERS & ANALYSTS to £17K

Several of the larger, well-established consultancies are undergoing large recruitment campaigns. Their standards are high, but so are the salaries - if you think you are worth more and have applications programming experience using IBM COBOL, CICS and PL/I OR three years + of IBM Systems Programming experience, particularly with MVS/JES 2 knowledge OR experience of five years + as an Analyst then we want to hear from you TODAY. All reasonable expenses are met while working on assignments at client companies and additional training is a positive benefit.

PROGRAMMERS TO PROJECT LEADERS £7.5K to £14K + Car

Many of our clients are actively recruiting candidates with two years + experience of commercial programming using DEC, VAX, RSX 11M, RSTS/E, BASIC + or +2. Positions are available at varying levels and applicants with manufacturing experience are of particular interest. In some instances substantial benefits are available including relocation expenses and company cars.

ALL LEVELS £s Attractive

To advertise all our clients' requirements would be impossible, we have many more positions available for experienced computer professionals who have worked on mini and mainframe equipment. If you are not included in the above sections do not despair, T.C.R. are always prepared to discuss career opportunities with Data Processing staff looking to enhance their careers and experience.

Remember "HE WHO HESITATES IS LOST". TELEPHONE IMMEDIATELY OR SEND YOUR C.V. TODAY.



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Our Client

Is the Treasury Division of a major international bank embarking on further, extensive computerisation of their dealing operations, to take them to the forefront of technology in this area.

The Role

This key management position will have full project responsibility for the system from initial involvement in equipment selection and systems architecture through to final implementation, with scope for continuing development.

Candidates

Will have well proven project management experience gained in a real time database orientated financial environment. Good communication skills are essential as is the ability to motivate staff and implement this major project on time.

Benefits

As well as salary, company car and subsidised mortgage there is a highly attractive package embracing all the usual banking benefits.

For further discussion in complete confidence please telephone Tony Roberts on 0270 627206 daytime or 0270 624058 evenings and weekends, or write to him at the address across. Candidates' identity will not be made known to our client without prior approval.

Programming - with a difference.

Up to £16,000+car

At Hambro Life we have a refreshingly different view of what application programmers should be doing:

We think they should be more than just coders. We believe a strong technical Programming Department is essential for the design and implementation of the computer systems which are so central to the administration of our business.

As a result of this philosophy we are building an extremely strong and professional Programming Department which offers unlimited growth to programmers wishing to build technical careers.

Central to our applications software development is the use we make of IBM's database management system IMS - for example we have a network of logically related databases consisting of over 70 million segments. (Our IBM 3081 runs with 3380 discs using Xerox laser printers.)

But Programming at Hambro Life is also different because the company is different. Not content with its position as the country's largest unit-linked life company, and one of the top 50 companies in the U.K., it is now embarking on a programme of diversification and expansion that offers growth opportunities for everyone. In 1983, we joined with several other leading companies in the financial sector to form Allied Hambro - which is just about the most revolutionary concept in personal financial services today (providing a working environment of unmatched diversity and opportunity).

All this activity means that we need more high-quality programmers to join our young professional team. IBM PL/I experience isn't essential - because we frequently re-train COBOL users. What you will need, however, is solid application programming experience, a

successful career to date, plus the drive and stamina to make the most of the opportunities on offer. Your career can develop into project leading or into more technical areas - it's up to you.

Your starting salary will naturally depend on your experience, ability and potential. In addition, our first-class benefits package includes non-contributory pension, profit-sharing and share option schemes, free life cover, BUPA and generous assistance with moving to this attractive part of the country.

Send now for our explanatory Programming booklet and an application form, or call Marilyn Adams on Swindon (0793) 27812 (24 hour answerphone).

Address: Hambro Life Assurance plc, Allied Hambro Centre, Swindon, SN1 1BL.

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Data General is a fast-expanding minicomputer company with a unique reputation for innovation and success. Our European Field Service Centre is located at the Birchwood Science Park in Warrington and provides the most advanced environment for training British and European Computer Engineers.

As a result of a dramatic growth in our customer base, we have significantly increased the strength of our Field Engineering teams and now need several Hardware Lecturers.

You will run courses for Engineers at all levels — teaching all aspects of our hardware products to newly-recruited Engineers, and to leading advanced courses on new products from board down to component level for professional Engineers (including practical instruction in our superbly-equipped laboratory). Lecturing will be in English and some 60-100 Engineers will attend these courses each week.

Our need is for people who can teach. This experience may have been gained as a Computer or Electronics Instructor in industry, or in H.M. Forces, or as a Teacher of a relevant subject in Higher Education. Whatever your background, we will further develop your abilities by sending you to the USA for new product training.

Salaries will be very attractive to reflect the importance of these positions. The job satisfaction is immense, and career prospects are first-class.

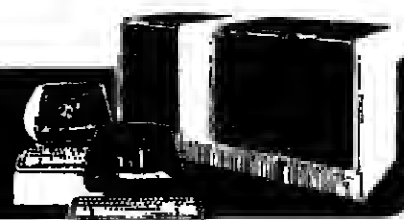
Please write with full details of your experience, or telephone Peter Christie, Field Personnel Manager, Data General Limited, Hounslow House, 724-734 London Road, Hounslow, Middlesex TW3 1PD. Tel: 01-572 7455.

Computer or Electronics Lecturer? H.M. Forces Instructor? Lecturer in Further Education?

Join the European Training Centre of a leading minicomputer manufacturer as a

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Real-Time Software Engineers

London and Surrey Borders Up to £15k+

Consistently expanding software house requires more staff with 18 months' real time systems experience. Knowledge of CORAL or FORTRAN on GEC 4000 or DEC equipment used for defence or industrial applications is needed. Bonus points for MASCO skills. Excellent career prospects. Ref 0803/A

Database Analysts

Up to £15k

Substantial experience of database systems (IMS IDMS INGRES) is needed with skills in data analysis and logical database design. Database dictionaries, database administration and physical database design are other areas of interest to our client. Either commercial or defence systems (preferably with graphics) would be worthwhile applications backgrounds. Overseas travel possibilities. Ref 0803/B

Analyst/Programmer

£7½k-£11k

A minimum of 12 months' on-line programming experience is required to join a team involved in the development and support of real-time software products for the UK and European insurance markets. Personal attributes are of prime importance and the opportunity exists to move into a specialist technical role. Ref 0803/C

HP 3000 Analyst/Programmers

£8k-£12½k

We have two clients currently seeking staff with good business and commercial experience gained in an HP 3000 environment. In both cases new development work is being undertaken and opportunities exist for people with all levels of experience. A minimum of 12 months' (post-training) COBOL experience is essential and knowledge of QUICK, QUIZ and QUERY useful. Ref 0803/D

Banking

£12k to £18k package

Two years (minimum) to five years (better) as an analyst/programmer in big minicomputer environment is the experience our client seeks. Tandem + TAL/COBOL or IBM + RPG is ideal, but other banking systems experience will also be considered for the more senior positions. Candidates must have project leading potential. Ref 0803/E



Isobel Bruce, David Fletcher or Gilbert van Someren 01-405 1908 or write quoting Ref. number, 16 Red Lion Square, London WC1R 4QS

Product Manager

£12k-£14k base

London

MicroNut or Marketing Man? Maybe a mixture of both. My client's new product follows a line of small WP devices and is targeted at the home and educational microcomputer market. They are looking for a competent, capable and effective communicator with micro programming and product or project management experience. Ref 0803/F

IBM Analyst/Programmer

£8k-£16k

London

Our major consultancy client has vacancies at levels from programmer to senior analyst for staff with good CICS/IMS skills. Knowledge of structured programming helpful. A software house background would be preferred but other high calibre candidates should also apply. Ref 0803/G

Sales

London & South East

Dealer Sales, P.C.s	£10k+10k++
Major Accounts, Peripherals	£12k+12k++
Sales Manager, Comms. products	£20k pkg
P.C. Software, Packages	to £30k
OEM Accounts, P.C.s, LANs, W.P.s	£18k+comms

Ref 0803/H

IBM-GSD-MAAPICS

£10k-£17k+

Greater London

Posts are available for well-qualified MAAPICS practitioners at levels varying from analyst/programmer to senior consultant. Some mobility and the personal qualities necessary to lead projects and to deal with clients are needed for the senior positions. Ref 0803/I

Software Engineers

To £14k + reloan.

London & Swindon

R & D department of a major British WP and PC (office automation) manufacturer has junior/senior vacancies for good graduates with a minimum of three/six years' relevant practical system design experience of communications, graphics, office automation, L.A.N.S. or voice recognition. Familiarity with structured programming using PLM-86 or C with Xenix/Unix or other operating systems is required. Ref 0803/J

Computer Professionals

Process Control

£9k-£16k

London, UK and Europe

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Systems Designers

To £13k

M Maidenhead/Stevenage

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Real-Time Applications

Up to £17k

Surrey Border

This systems house is seeking computer professionals capable of responding to a variety of technical challenges in the areas of defence, communications and information systems. The essential requirements include a good degree and technical competence in high level languages, e.g. PASCAL, CORAL 66, RTL2, 'C' or FORTRAN. Ref 0803/N

2 to 20 years Computing

£8k to £28k

England and Elsewhere

If your skills and requirements are not a match for the specific vacancies advertised here and you consider yourself to be "marketable material" call one of us for a short discussion. We know of a wide variety of vacancies in the computer industry. Ref 0803/P

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CAREER OPPORTUNITY

VAX TECHNICIAN £25,000+ Tax Free

The Consulting Centre for Finance and Investment (CCFI) is a leading Management, Finance and Investment Consulting Firm, active in a large private sector and Government Ministries in the Kingdom of Saudi Arabia. CCFI scope of activities has been enhanced to data processing and management of share floatation/registration of the joint stock companies.

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In the first instance please telephone the number below quoting reference 0819, or alternatively send the FREEPOST coupon and by return you will receive a company profile and application form.

By return of post, please send an application form and client company profile to:

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Address:

Home tel. no:

Business tel. no: (Used with discretion)

COMPUTASTAFF

FREEPOST: London SW1H 9BR. 01-222 6722. Telex: 694364.

Ref. 0818

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Mastery of current hardware and software developments is essential, together with the capability of successfully tailoring these to meet company requirements and staff capabilities with appropriate consultation and training programmes as required.

Ideally candidates will be qualified with BSc (Hons) Computer Science or equivalent together with several years' experience in an engineering or scientific computing environment, age 28-35.

Top salary with attractive fringe benefits will be offered for the right person.

Please apply giving full details of age, qualifications, experience and salary to:-

Miss E.M. Scoble GEC-Jerrold Ltd 642-643 Ajax Avenue Slough SL1 4BG. Telephone: (0753) 821671

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SOFTWARE TEAM LEADER

Successful, local, email and British! For many years this company has designed, produced and sold a range of systems for communications users (non-military). They now have corporate approval for expansion, new products and new software for UNIX and C.

If your background includes Intel or PDP/AS software then take your first step into technical management - initially under the guidance of a resident consultant.

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Applicants should be well versed in IBM systems, with sales experience and keen to meet the challenges presented by a fast expanding company. With prospects of rapid development within the company, a keen approach will count more than a lengthy sales track record.

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(8211)

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NORTH-WEST LONDON/THAMES VALLEY/CITY

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A senior Field Service Engineer to work out of a newly-established London office is sought by our clients, a turnkey microsystems house (also agents for an American and a Japanese micro business machine manufacturer), working in conjunction with the software and sales support engineer. You will be providing technical support and service to their ever-growing customer base.

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Major mini/supercal manufacturers now recruiting Field Engineers for 1984. Your existing knowledge of minis and large peripherals will be greatly enhanced with generous benefits in return for your dedication.

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ALLTRONICS PEOPLE (Agy.)

(8243)

Technical Support Manager for Cullinet Software South East Asia.

NEGOTIABLE TO £20,000

Broadway Management - Cullinet Software's representative in Hong Kong, Malaysia, Philippines, Taiwan, Singapore and Thailand require a manager experienced in the design and implementation of IDMS based systems on IBM hardware. Extensive data communications experience preferred.

The successful candidate, who will probably be around 30-35 and single, can expect wide responsibility for the management of a team providing support and training for IDMS users in the area.

Benefits include free accommodation, vacation flights to UK and a salary commensurate with this important post. (Tax is only 15% per cent on gross income in Hong Kong).

Interviews to be held London - April.

Write with CV to Broadway Management,
Box 99, 82 The Broadway,
Stanmore,
Middlesex HA7 4DU.

Cullinet

(8210)

SENIOR SYSTEMS DESIGNER

Greater
Manchester

c. £12,000+
Car + Benefits

This company is a substantial manufacturing concern located in Greater Manchester and is a subsidiary of a major international British group with a turnover in excess of half a billion pounds.

An immediate priority is to rationalise the company's existing computer systems in accordance with corporate strategy which necessitates the recruitment of a senior systems designer. This position will report directly to London and will have the responsibility for the development, integration and implementation of the new DEC based systems covering all aspects of stock, production and financial management control.

The requirement is for candidates aged 25-35, preferably educated to degree level, with 2-3 years minimum involvement with PDP or VAX in an analyst programming role where a sound applications background with commercial and manufacturing, has been gained.

Ideally the successful candidate will have thorough knowledge of database and program generation techniques and more importantly the ability to lead this project from initiation onwards.

A strong personality, tenacity and drive, with the necessary inter-personal skills to relate at all levels, are a pre-requisite to the success of the individual.

The benefits of joining this large and prestigious group will include a negotiable salary, a company car of your choice within pre-defined limits and the real potential to become an important member of the management team in this progressive D.P. environment.

To apply for this challenging opportunity please write with full career details, or better still, telephone Angela Taylor for an immediate confidential discussion on 061-833 0846 during business hours. Evenings and weekends until 9.00 pm telephone: 061-865 5754.

INTERFACE

RECRUITMENT & SELECTION CONSULTANTS LTD

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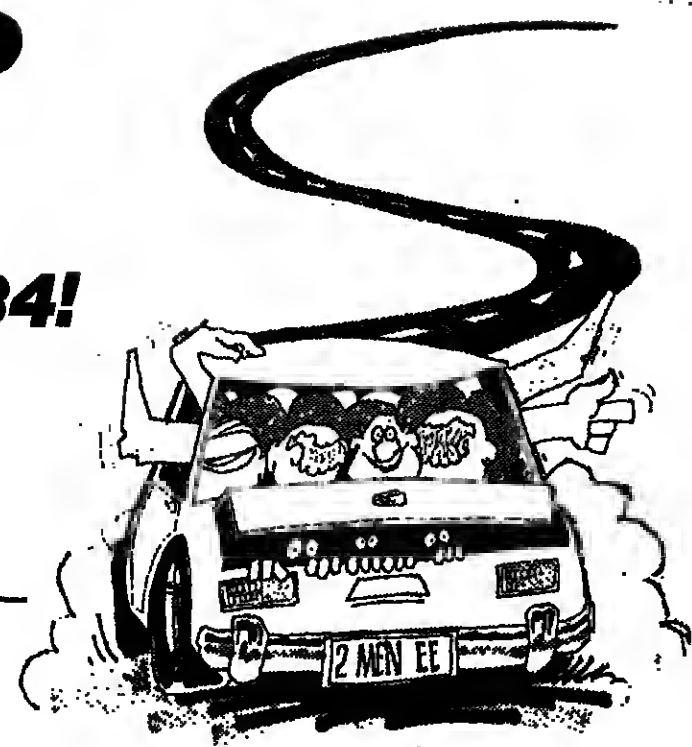
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c280

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There are vacancies for Analysts, Analyst/Programmers and Programmers, but jobs here are not as rigorously defined as that. Most people do both analysis and programming work, but the work can be organised to suit your abilities and aspirations.

A small (35 people in the U.K.), friendly and well established software house, dealing in highly specialised and very interesting financial applications in the City and New York. Current vacancies are for the UK, but opportunities may arise to go to the USA.

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A minimum of 18 months' experience is required in an IBM installation plus a solid COBOL or ASSEMBLER background for the opportunity to work in this progressive environment on a large variety of development projects. Very good career advancement.

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RPG II or III Progs & Anal/Progs All Areas £Neg

We have a large number of clients offering solid salaries and promotion prospects for individuals with a minimum of two years' experience.

UNIX Experience E.8. to £15,000

The advanced systems division of an international systems and software engineering company is seeking a number of Systems Designers and Software Engineers/Programmers to work at their Software Laboratory in the development of various products for the financial markets. On-going training given.

IBM COBOL Progs & Analyst/Progs All Areas £Neg

We currently have a wide variety of positions for people wishing to advance their careers in companies with good prospects for the right individuals.

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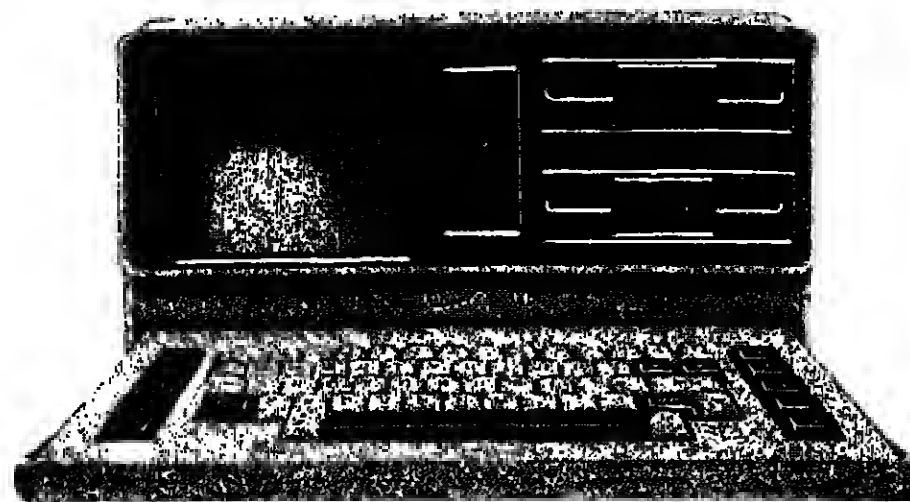
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The successful candidate will have several years experience of DOS/VSE, VM, CICS/VS and telecommunications, and will be expected to lead a group of systems programmers in the development and support of the operating systems environment on IBM mainframes, mini end microcomputers.

The position will appeal to candidates who wish to retain a high technical content in their role in addition to supervising a small group of technical staff.

If you feel you can offer the level of expertise for this role, telephone or write to us now quoting reference W3081

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Members of the Wythenshawe team will be available for informal discussion between 1.00pm and 4.00pm at various locations throughout March.

Maldenhead	Tuesday, 13th March
Farnborough	Crest Hotel, Manor Lane
Glasgow	Tuesday, 14th March
London	Queens Hotel, Loughborough Road
Stoke	Wednesday, 14th March
Leamington	The Shear 12th Hotel, Cambridge Street
Stoke	Wednesday, 14th March
Leamington	VLI House, 68-69 St Martin's Lane
Leamington	Thursday, 15th March
Leamington	Post House, Clayton Road
Leamington	Newcastle-under-Lyme
Leamington	Thursday, 15th March
Leamington	Crest Motor Hotel, 641 Dursdale Road
Leamington	Monday, 19th March
Leamington	Ladbroke Regency Hotel, Regent Way
Leamington	Monday, 19th March
Leamington	Computer People Midlands Alpha Town
Leamington	Tuesday, 20th March
Leamington	Atlantic Tower Hotel, Chapel Street
Leamington	Tuesday, 20th March
Leamington	Crest Court Hotel, Church Street, Altrincham
Leamington	Thursday, 22nd March
Leamington	Computer People North Sovereign House, Cheshire
Newcastle upon Tyne	Wednesday, 21st March
Newcastle upon Tyne	Crest Hotel, Newbridge Street
Nottingham	Wednesday, 21st March
Nottingham	Albany Hotel, St James Street

See local press for more details.

If you are unable to attend but would like to know more, contact our Recruitment consultants and ask for Graham Pepper on 061-491 1666 (daytime) or 061-491 1666 (evenings/weekends). Alternatively, write to him at Computer People North, FREEPOST, Sovereign House, Stockport Road, Cheshire, SK8 2YD

VLI Computer People North

01-836 8411 Computer People London, VLI House, 68-69 St Martin's Lane, London WC2H 4J5 01-440 4013 Computer People South, 37 George Street, Croydon CR9 1LB
021-643 8501 Computer People Midlands, Alpha Town, Birmingham B1 1TT 044-491 1666 Computer People North, Sovereign House, Stockport Road, Cheshire, Cheshire SK8 2YD 01-836 8411 Computer People International, VLI House, 68-69 St Martin's Lane, London WC2H 4J5
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Top down development of functional system designs to meet high level statements of customer requirements. Establishment of a high integrity correlated tactical database using inputs from multiple local and remote sensors. Load management by selective filtering of input data and tasking of data sources. Application of centralised and distributed approaches to the maintenance, preservation and recovery of complex databases in reconfigurable multi-processor command and combat systems.

Application of relational databases and array processing to the database requirements of modern command systems. File structures access procedures, retrieval criteria, and distribution techniques for real-time and reference databases.

Data Communications

Development of data communications handling systems for the rapid exchange

of tactical information between Command Systems on different ships.

Design, implementation and testing of data communication protocols. Development of command system/data link interfaces.

Interoperability or data communications with other NATO countries.

Feasibility and implementation of new tactical data links. Multi-processor working and local area networks.

Both positions call for a degree/HNC, at least 4 years' experience and, ideally, knowledge of MASCOT.

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Please telephone or write, quoting reference B/1099/CW, to: Recruitment Section, Ferranti Computer Systems Limited, Western Road, Bracknell, Berkshire RG12 1RA. Tel: Bracknell 483232 ext 3471.

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Young Charles Chaplin
 have the
 American to
 make good in
 America



Charles Spencer Chaplin 1889-1977

Product of a broken home who became a lovable clown and one of England's most famous exports.

Charles Spencer Chaplin was born in London, on April 16th 1889. His parents divorced when he was young; consequently, he and his brother spent their childhood and youth being cared for in a Lambeth children's home. Young Charles had stars in his eyes at a very early age - by the time he was 19, he was already a star performer with the famous Fred Karno's Comedians. The troupe's tour of America in 1913 was a raging success, not least for Charles who was contracted by a certain Mack Sennett to join the famous Keystone Studios. During that first year, Charles made no fewer than 35 one reel comedies.

However, the rot soon set in. Charles not only detested what he considered to be unnecessary violence and slapstick, he

wanted to develop his characterisation of the "little tramp" - the pathetic but lovable clown who sported the derby hat, exaggerated shoes, baggy trousers and tight jacket we have all come to recognise so well.

He achieved his dream - and by 1915 Charlie Chaplin's shuffling gait was famous throughout the world. With Essanay Studios and, latterly, The Mutual Company, Charlie Chaplin became a household word. First National Films gave him his first opportunity as a successful producer. Much later, with Mary Pickford, Douglas Fairbanks Senior and D.W. Griffiths, he established the United Artists Corporation.

America is still a land of opportunity and not least for Computer Professionals. British expertise has earned international respect and is highly sought after in the U.S.A. where computer technology is among the most sophisticated in the world.

This is one of the reasons why our client, one of America's most eminent and long-established software houses, wishes to appoint a number of experienced computer people to undertake problem-solving responsibilities throughout the country.

The company provides a wide-ranging analysis, design and programming service to blue chip clients in all strata of industry - financial, brokerage, utilities, manufacturing, distribution and services. It already employs over 500 technical staff and has an annual turnover of around \$32 million which continues to grow.

We cannot sufficiently emphasize the importance of these new appointments. As a successful applicant, your importance is reflected in the salary and benefit package. The salaries offered fall within an equivalent range of **\$17,500 to \$40,000 pa.** Benefits include medical, dental, life and disability insurance, paid overtime, unlimited tuition reimbursement, a variety of assignments and locations from New York to San Francisco and all points in between. Relocation assistance will be given including the provision of visas and work permits.

For more detailed information - and an informal discussion about computer careers in America - please contact Marilyn Davidson or David Thompson on 01-836 6775.

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BUSINESS ANALYST

London area Up to £15,000

User Driven Micro Solutions

Our client is the European headquarters of an American owned FMCG group with five British manufacturing sites, a Distribution and Computer centre in the Midlands and a London Head Office.

The Company has executed major changes in the last decade: doubling staff in response to increasing business and dramatically reshaping marketing strategy. In this atmosphere of progress, Management Information has become a crucial requirement.

Besides running HP and IBM mainframe systems to support day-to-day operations they also have a central MIS team which is increasingly commissioned by users from all disciplines and locations within the group to provide systems advice, problem solving and complete solutions.

As a result of the emphasis on distributed micro based systems a small team has been formed to provide micro-computing expertise - assessing hardware, packages and software tools to provide stand alone and mainframe linked, user-driven solutions. Throughout, the objective will be to educate and service users to appoint where they can realistically define their needs and operate optimum solutions using MIS in an advisory and supporting role.

They now require a computer-literate Business Analyst to join a new, three person team. Ideally you will have a Business Studies academic base, moving perhaps via O & M/Management Services to systems automation project work. Most importantly, you should be articulate, self-motivated, enquiring, flexible and enthusiastic - with the personal qualities that will make you a productive member of a small team serving users at all levels and from all disciplines in a scattered European group.

If you seek an atmosphere of challenge and achievement, then contact:

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The job function will entail responsibility for the import and export of all software handled by the Group. This will involve accepting, checking and installing deliveries and performing and occasionally installing releases. Will also support the functions of the Test and Quality department by providing a service controlling the software processes in terms of software movement and storage.

Programmer (Test and Quality)

Will be required to assist in assuring optimum quality of the tools handled by the

Group by liaising with application developers and tool users, together with routine testing. The work will also include supporting the administration functions of quality assurance by writing test specifications, test systems and reports.

In both cases applicants will be expected to have had two or more years experience working within an IBM environment particularly on applications running under MVS. They must also possess a sound knowledge of PL/I or IBM assembler whilst experience of ISPF, IBM utilities and VM would be a distinct advantage. A good educational background e.g., GCE science at 'A' levels is required. Equally essential qualities sought are diplomacy and good communication skills. Both posts report to Test and Quality group leader.

We offer excellent salaries in line with your experience and performance. Generous relocation packages (including first time buyers) will be offered where appropriate. Career development prospects are excellent.

If you believe you can meet our requirements please send a brief c.v. outlining your experience to: Mrs Eleanor Merger (tell), Personnel Officer, ITT Europe Engineering Support Centre, Great Eastern House, Edinburgh Way, Harlow, Essex. CM20 2BN.

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The position involves direct contact with users at all levels within the company and calls for personal qualities in addition to the necessary technical abilities.

Growth and achievement, coupled with a mature attitude, are pre-requisites for applicants that require the challenge of significant responsibility.

Successful applicants will be working within the Head Office Information Processing Division. Salary is negotiable and there are the usual benefits associated with a large company.

For an early interview phone (preferably) or write to our recruitment consultant, **Marshall Cligman**, at the London office below.

Specifications
 RPG III
 IBM SYS 38
 Financial and
 Database applications



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INTERFACE
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Telephone: 061-833 0846

BUSINESS ANALYSIS IN BANKING

Help Introduce 1990's Methods Now

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One who has Office Automation expertise and the other with Data Analysis/Corporate Database experience. Each should be able to demonstrate successful involvement at an influential level, with the introduction of their specialisation; each should be capable of defining strategy, of assessing alternative approaches and of overseeing the phased development and integration of the new techniques. Suitable candidates are likely to have at least 7 years' experience of business/systems analysis and will be thoroughly accustomed to liaison and communication at all levels.

2 Business Analysts

To join a team developing a major new Leasing system; one analyst is required with prior experience of Leasing Applications gained at design level and the other with a numerate background, working on Financial Systems or Financial Modelling. Ideal candidates will be in their early to mid 20's with 2-3 years' related experience.

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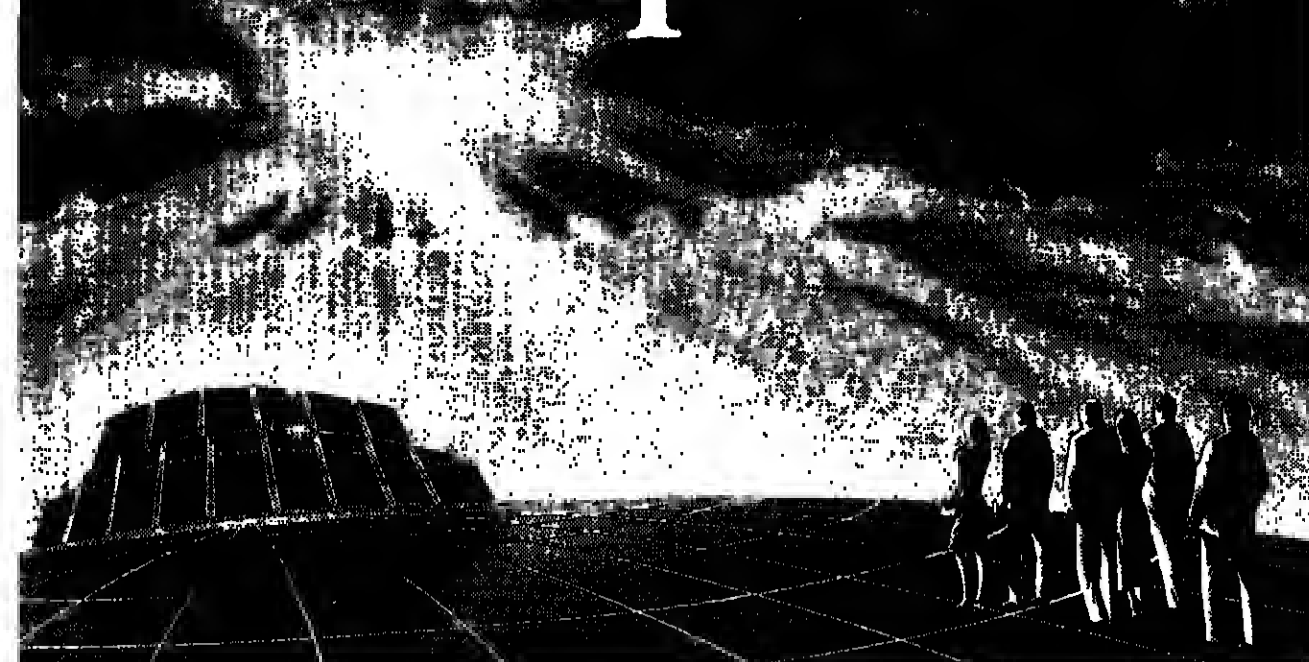
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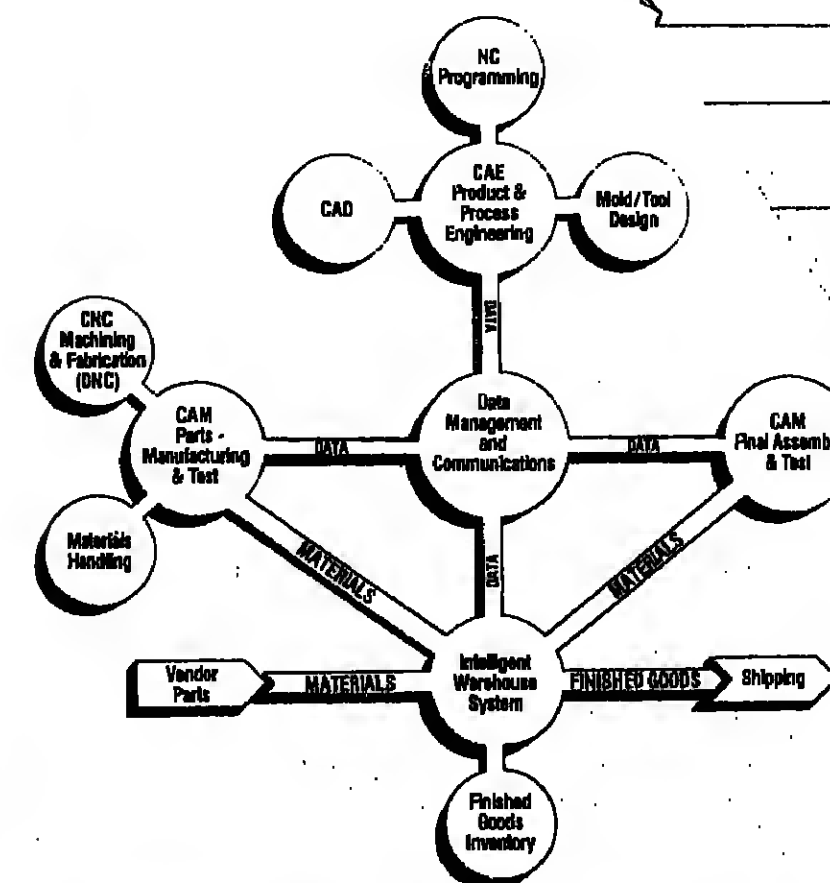
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THE START & GENERATION



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ANALYST/PROGRAMMER

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(0271)

IBM Systems Programming in Rural Wiltshire

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Other software in use at our installation includes CICS/VS1, TOTAL, DATAMAN, SYNC SORT and MANTIS and the 4331 will make use of APL, ADRS and WORKPAD. The main Programming Language is PL1. Specific software training is available when required.

This developing environment has now created an opportunity for a Senior Systems Programmer, with 2 years relevant experience to join and contribute to the expansion.

The successful Candidate will be involved in implementing major software developments, evaluating and installing software packages and solving day-to-day problems. Excellent prospects are available to someone seeking to further their career in Systems Programming, and benefits include relocation assistance and modern working conditions.

If you would like to be considered, contact our Advising Consultant, IAN MASON, on 021-236 3781 (24 hour answering service) or on 021 353 5721 (evenings 7.30-9.00 pm and weekends).

Senior Systems Programmer

to £12,200

Technical, Sales & Management Appointments

Specialist Computer Recruitment Ltd

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NORTH
International House, 84 Deansgate,
Manchester M3 3EE
061-833 0427

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★ IBM SPOT ★

MVS COBOL **WEST LONDON** **c.£11,500**
Two years' + commercial IBM COBOL programming, with exposure to MVS. Chance to be trained in CICS and move into analysis and user support.

RPG III SENIOR **WIDEX/BERKS** **TO £13,000**
Three years' + IBM System 34/38 experience required with at least 12 months' RPG III. Opportunity to move into management role at new IBM System 38 installation. Excellent perks.

PL/1 **CITY** **TO £12,000**
Looking for a move into analysis or team leading? My client has two positions, both require two years' IBM PL/1 experience, a strong personality and ambition. Please for details.

DPM/RPG II **CITY** **c.£15,000**
Move into management! Small IBM System 34 site embarking on several large projects. Solid RPG II background essential, coupled with sound analytical and design skills.

ANALYST/PROGRAMMERS **SURREY** **c.£11,000**
To join a leading organisation. Two years' + IBM COBOL, DOS/VSE, CICS and DL/1. Good prospects, benefits include subsidised travel.

IBM PROGRAMMERS **S. LONDON** **c.£10,000**
Minimum of two years' IBM COBOL, with some MVS and JCL knowledge. Opportunity to gain on-line and database experience in a development team.

PROJECT LEADER **HERTS** **£13,000**
Leading manufacturing company. Senior analyst to run a project team. IBM CICS and DL/1 background essential. Make your experience work for you!

IBM COBOL **CITY** **£12,000+**
Senior Analyst/Programmer with three years' IBM COBOL, OS or MVS background. Move towards team management in a supervisory role.

PROGRAMMER **HERTS** **c.£8,500**
Junior Programmer with 12 months' commercial IBM COBOL under DOS/VSE. Excellent training facilities and lively young team.

These are just a few
of the positions we
have on file.
Contact Carol,
Glenda or Carolyn
for details.

Engledown Computer
Personnel Consultants,
Brushfield House,
12 Brushfield Street,
Bishopsgate, London
E1 6AN.
TELEPHONE: 01-247 3356
(24 hours).

COMPUTER PERSONNEL CONSULTANTS

ANALYST PROGRAMMER

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Salary up
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Middlesex

If you're looking for an
environment that offers a
challenge and responsibility in
return for your expertise, then
take a close look at our Client.

They are an internationally renowned engineering company with an impressive record of export sales, and part of a major UK Public Group. Computerisation has played a key role in their business and their commitment to develop and enhance their systems is total.

Their applications are wide ranging and it is for their major Distribution and Parts system that they now need an Analyst/Programmer, to be responsible for its support and development. Currently supported by a MICRODATA/CMC REALITY, using programs written in RPL and ENGLISH, this runs in parallel with their other manufacturing and commercial systems powered by an HP 3000 using Cobol, and it is planned that eventually the systems will be integrated under the HP 3000.

The need is for an energetic, practical all rounder with at least 2 1/2 years experience including a thorough understanding of the Reality machine and the software as detailed above.

If you are self motivated, possess initiative and are looking for the opportunity to build upon your existing skills in a demanding environment where individual effort is recognised - then please call Hugh Moore on 01-734 9723 office hours or 01-481 2788 evenings and weekends.

Computer Technology Recruitment Ltd.
Triumph House, 189 Regent Street, London W1R 7WD.

Up to £12k

DALROTH

SAUDI ARABIA TAX FREE £19,000-£32,000

IBM · DEC · WANG

Commercial or T.P. Network Expertise

The skills currently required to maintain the thrust of new development now urgently include personnel from areas of medium size mainframes and small computing systems backgrounds.

You will be working within a computing environment internationally recognised for the development of their state-of-the-art equipment and facilities; socially you will discover that located in the Arabian Gulf leisure and sports activities are also almost without limit.

The standard consultant's package includes free flights, accommodation and Medicare. This together with the generous tax-free salaries available, can provide an opportunity beneficial to candidates with the following backgrounds:

1. SYSTEMS ANALYST/TRAINER

specific responsibilities will include analysis and design together with the training of applications oriented personnel working in DEC/VAX based systems.

2. SYSTEMS PROGRAMMER

main responsibilities will include DEC/VAX hardware installation and software development for network systems.

3. SYSTEMS ENGINEER

installation and software support for WANG systems including SNA interface in IBM hardware.

4. PROGRAMMER/ANALYSTS

to maintain end/or develop medium size mainframe business applications for conversion to run on a P.C. network for which PL/1, MVS, JCL, extended SP/ and Mark IV is required. Knowledge of IBM P.C. and Micro networking/multi user operating systems with mini/micro networking hardware/software preferred.

5. ANALYSTS/CONSULTANTS

Information Technology. To provide professional technical consulting in the application of information technology within user organisations. Knowledge of IBM, WANG or DEC hardware/software with recent experience in project management is required.

6. SYSTEMS ANALYSTS

Office Systems. Experienced in office systems fields with knowledge of applications for IBM/DEC/WANG small computers, more recently in the design, analysis and control of office systems with emphasis on work processing/dets processing or micro systems.

7. SENIOR ANALYSTS

Risk/Benefits Analysis. With long range planning and risk/benefit analysis experience required to liaise at senior level for applications planning. Knowledge of mini/micro business applications an advantage.

8. ANALYST PROGRAMMERS

A PL1 programming background is essential. Ideally including IMS, TSO/SPF, ADF on large IBM mainframe hardware.

The start dates are flexible, however, the client requires interviews scheduled over the next few weeks for which you should contact Caroline Tee on day, 01-493 2947 or evenings/weekends 01-723 7523 without delay for further application details quoting ref. 5057.

DALROTH & PARTNERS LTD. 4 HALF MOON STREET, LONDON W1

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SALES PATCH EUROPE COMPUTER PERIPHERALS

Salary? You tell us! Plus choice of car
Pension Scheme · Life Insurance

Our client, a fast expanding technology leader in the field of data communications and data storage, has created a career opportunity for a highly-motivated Export Sales Executive. You will undertake the control and development of major OEMs and support the distribution network throughout Europe. You will ideally have a proven sales background in peripherals, be prepared to travel 40% of the time, want the stimulating environment of this energetic company and the inevitable continued success and career prospects which this position offers.

Phone CLINTON HARDY-DAVIES on 01-543 4844

ALLTRONICS PEOPLE (Agy.)

(Ref. 1369)

SYSTEMS ANALYST

Bury, Greater Manchester County

circa £9,250

Owens Mechanical & Co. Ltd. is the largest independent manufacturer of paint and surface coatings in the UK.

Reporting to the Systems and Programming Manager, the job holder's duties will cover all aspects of systems development from user requirements specification to implementation. The working environment is pleasant, well equipped open-plan office.

The successful applicant will have had at least four years' systems experience preferably gained in a large industrial organisation. DEC experience (PDP11, RSTS, DIBOL) would be a distinct advantage, as would knowledge of structured methodologies. He/she will be well educated, preferably to degree level.

Benefits include pension, ill-health and life assurance schemes, basic 35-hour week and generous holidays. Relocation will be paid where appropriate.

Write or telephone for an application form, quoting reference 15/84, to:

The Recruitment Officer
Owens Mechanical & Co. Ltd.
Radcliffe Road
Bury, Lancs OL8 9NB

081-764 4630, Ext 527



maindec

Maindec is a rapidly expanding computer sales and service organisation in the UK. We are currently able to offer the following opportunities for engineers seeking further career development.

1. COMPUTER FIELD ENGINEERS

Field Engineers with experience in the mainframe industry and to have a depth knowledge of PDP-11 and VAX-11 systems and/or associated computer peripherals. The successful applicant should be able to work on his own initiative and should be highly motivated within this field. The position would involve travel throughout London and the Home Counties.

2. JUNIOR SERVICE ENGINEERS

To work in a variety of computer terminal and peripheral equipment. The position would be ideal for a young enthusiastic person who may currently be working with TV/Hi-Fi equipment.

The use of a company car is offered with the above positions.

3. IN-HOUSE TECHNICIAN

To work at our High Wycombe office on various terminals, peripherals and computer systems. Also to assist with installation/commissioning tasks at customer sites. This person will have a sound knowledge of electronics and would have worked as a bench or test engineer.

4. PRODUCTION/LOGISTICS MANAGER

This appointment carries full responsibility for smooth operation of the computer system build and depot repair departments. The likely candidate would be aged between 28-35 with an in-depth experience of PDP11/VAX systems and peripherals. A company car and competitive salary are offered with exciting prospects accompanying a top position with a dynamic expanding company.

For all positions we offer:

Basic salary (negotiable), overtime, non-contributory pension scheme, together with a comprehensive benefits package.

Please contact:

Juliet Farrelly, Maindec, Unit 14, Wyse Estate, London Road, High Wycombe, Bucks. Tel: 0494 20443.

*PDP and VAX are trade marks of Digital Computer Corporation.

PROGRAMMER/ANALYST - YORKSHIRE

To meet growing demands for systems development we require an additional experienced Analyst Programmer.

The person appointed will join a small team involved in all phases of programme development and is likely to have:

- ★ Two years' COBOL programming experience
- ★ Knowledge of Data Base Management and Communications Systems
- ★ Current driving licence

The company is a member of Hepworth Ceramic Holdings PLC and is the world's largest manufacturer of vitrified clay underground drainage systems and cable conduits. The successful candidate will be employed at the headquarters of the company which is situated in a rural location eight miles from Huddersfield and 15 miles from Sheffield.



CV details to Computer Manager:
The Hepworth Iron Company Limited
Hezlehead, Stocksbridge
Sheffield S30 5HG

VACANCIES FOR COMPUTER PROFESSIONALS

Excellent and rewarding opportunities exist with our Clients - all leading names in the Mini, Data Communications and Mainframe sectors of the industry.

There are immediate vacancies for Applicants qualified in any of the following areas:

- SALES EXECUTIVES
- SALES SUPPORT
- PRODUCT DEVELOPMENT
- SOFTWARE DEVELOPMENT
- SYSTEMS PROGRAMMING
- COMMUNICATIONS
- PROJECT MANAGEMENT
- MARKET RESEARCH
- ... AND MANY OTHERS

Please post your c.v. and any other relevant details to:

SKINNER, CLARK & WICKES LTD
RECRUITMENT CONSULTANTS
LION HOUSE, HIGH STREET
THAMES DITTON, SURREY KT7 0SD

BOX NUMBERS

Box number replies should be addressed to:

Box Number
c/o Computer Weekly
Quadrant House, The Quadrant
Barnet, Surrey EN4 5AB

Control/Application Engineer

Bingham - Notts.

A current vacancy exists for an industrial control engineer, with a thorough knowledge of programmable controllers or microprocessors.

Ideally qualified to degree level, although ONC/HNC/HND qualifications with the relevant experience will be considered, the ability to program in ladder network is an essential requirement. Additional knowledge of a computer language and/or in-depth experience of Allen Bradley, Modicon, ILC or GEC programmable controllers would be a distinct advantage.

We have a major involvement in the application of computers, graphic equipment, programmable controllers and communication networks to most industrial process control systems. In addition, we have the expertise to handle all facets of control, from conception through to customer acceptance.

Candidates must be dedicated and capable of working independently both at base in the highly attractive market town of Bingham and on occasional overseas assignments.

Salary is negotiable with benefits appropriate to a company of our standing.

If you feel that you can meet the requirements of this position, we look forward to hearing from you. Send a cv. to Peter R. Clark, Haden Automation Systems Limited, P.O. Box 14, 7-12 Tavistock Square, London WC1H 9TZ.

HADEN AUTOMATION
SYSTEMS LIMITED

CUSTOMER SPECIALIST

£15k + CAR + BUPA + PENSION SCHEME
+ U.S. TRAINING

Our client, a leading manufacturer in micro, has a ground-floor opportunity in its London office to become a senior support representative. He or she will be expected to make customer visits in pre- and post-sales situations, to present the detailed benefits of our client's prestige products, evaluate problems and propose solutions whilst being prepared to modify standard software. Freedom to exercise own initiative is a key part of this position and our client will consider applicants with a view to future progression.

STOP PRESS... U.S. 32-bit mini manufacturer offers new opportunities in office automation - comms, etc., applications to support people with ambition!!

Call KEITH WALLIS now on 01-543 4844
or 048641 2675 (evenings/weekends)

ALLTRONICS PEOPLE (Agy.)

PROGRAMMERS

Southern-Event Ltd., part of the Magnet and Southern PLC Group, require Programmers at their Head Office in Widnes, Cheshire. The company is changing its system from O.M.E. to V.M.E. and is implementing a Database System, data communication links to branches who will have terminals linked to the mainframe at head office.

The successful candidate will have experience in either V.M.E. or O.M.E. or I.P.M.S. Good salaries will be offered and there are excellent conditions of employment including group pension scheme, and 21 days' holiday.

Applications giving details of experience, particularly in applications and current salary should be sent to:

T. J. Davies
Manager - C.A.M. Department
Southern-Event Ltd.
Basson House, Mill Lane, Widnes, Cheshire WA9 9LJ

Magnet & Southern

Computer Programmer

Croydon

Due to an increasing workload, a firm of International Consulting Engineers require a FORTRAN programmer to join a team of 12 computer staff and to develop applications for management information and technical engineering.

Applicants should have had some experience of accounts work and should be familiar with either the VAX or HP 9000 range of computers.

This is a permanent staff appointment based at the Croydon office.

Applicants should write, enclosing a brief c.v. and quoting reference number 255, to:

Associate for Personnel
Mott, Hay and Anderson
20/26 Wellesley Road
Croydon CR9 2UL

Mott, Hay & Anderson
International Consulting Engineers

CUSTOMER ENGINEERS

Technical & commercial
computer systems

London and surrounding areas

Excellent remuneration
+ benefits + 2-litre car

Do you have at least two years' experience of servicing computers or related products? Are you committed to the highest standards of customer support? If so, you could be one of the people we seek to service our sophisticated computer-based systems from a Central London, Hammersmith or Basildon office.

Join Hewlett-Packard, and you'll be moving into a progressive, financially secure high-technology environment with an unsurpassed reputation for engineering excellence - and a very strong commitment to individual career advancement. Comprehensive product training will be backed by on-going training designed to keep you well in touch with the very latest technical and market developments.

We'll offer you a very attractive starting

salary backed by an exceptional benefits package including 2-litre car, twice-yearly profit-sharing, share-purchase scheme, discounted BUPA, free pension and life assurance scheme, and more.

If you hold an HNC in electronics (or equivalent), and can combine a high level of technical capability with the proven personal skills essential for success in a demanding customer-contact environment, we'd like to hear from you.

Call Sue Krubbs on 0734 784774 for more information and an application form, or write to her enclosing full personal, career and salary details at Hewlett-Packard Limited, King Street Lane, Wetherby, Wetherby, West Yorkshire LS14 5AR.

Hewlett-Packard is an equal opportunity employer.

HEWLETT
PACKARD

Computer Operations Manager (Pharmaceutical Research)

to £18,000 incl. allowances Greenford, Middx.

Glaxo Group Research is Britain's leading pharmaceutical research organisation, employing over 1100 R & D scientific and technical staff. Our Computer Science Department provides the necessary computing and statistical support through a network of PRIME computers. This network currently consists of a PRIME 850, two PRIME 750's and a PRIME 2250 with 4.8 gigabytes of disc storage shared between the four systems. Over 300 terminals are connected to the network. The latest PRIME 950, with 10 megabytes, will be installed shortly to replace one of the PRIME 750 machines.

Through rapid growth of the installation over the last two years it is necessary for us to appoint a Computer Operations Manager. Specific responsibilities include the day-to-day administration of the installation covering the computer room and data preparation function, maintenance of a new equipment database and support of the terminal network across two sites.

Whilst reporting to the Systems and Operations Manager, there will be ample opportunities for further managerial responsibility in the future.

For this key post we would expect applicants to be able to demonstrate managerial skills through experience in a computer operations environment, preferably using PRIME hardware. They must have good communication skills as there will be regular contact with staff at all levels, both inside and outside the Company. Other essential personal characteristics are a flexible and mature disposition, a willingness to work unsocial hours when necessary and the ability to think clearly under pressure.

The Company offers an attractive salary package (to be reviewed in July) including participation in Group profit share. Other major benefits include a non-contributory pension scheme, subsidised canteen and excellent sports and social facilities. Assistance with relocation will be given in appropriate cases.

Please send a CV or telephone for an application form to: Mr. R. W. Jones, Personnel Officer, Glaxo Group Research Ltd., Greenford Road, Greenford, Middlesex UB8 3HE. Tel: 01-422 3434 ext. 2707 quoting ref. no. OEU/518.

Glaxo Group Research Ltd.

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(01) 661 8080

SUPPORT ENGINEER

TANDON INTERNATIONAL, the leading manufacturer of small disk drives, requires a SUPPORT ENGINEER to work from their Reading facility.

Applicants should have practical experience with both floppy and Winchester drives including in-depth knowledge of digital magnetic recording principles.

SALARY: £11,000 pa. Other benefits include company car, BUPA, holiday bonus.

PLEASE CONTACT Sierren Renew

Tandon

Reading (0734) 864676

Subsidiary of major group requires engineers at management and designer levels with experience of ATE, quality control and analogue and digital design. Some software experience is desirable. Degree/HND qualifications essential. Attractive location. Competitive salaries. Full relocation. Ref. 312

TECHNICAL SERVICES — DEVELOPMENT SUPPORT

★ **GROUP LEADER** to £17,000
★ + **2 IBM ASSEMBLER PROGRAMMERS** to £10,500

CITY OF LONDON

IBM ASSEMBLER DOS/VSE CICS VM

The more sophisticated the computer service, the more important becomes the link between technical services and the applications development environment.

Our client, a very successful financial information services organisation, has recognised this need and is now setting up an Applications Support Group to provide the link.

This group will be responsible for the first-line problem support, and advice and guidance on the technical direction of the Applications. It will also help evaluate and provide methods, standards, documentation and productivity aids for the company, so that a firm base can be built for further development of its rapidly expanding services in the UK and overseas.

The company requires a **GROUP LEADER** and two **PROGRAMMERS** who wish to develop their skills in a very technically stimulating environment. Successful candidates will be able to show expertise of ASSEMBLER programming in an on-line and batch environment in either applications or systems programming. Experience of VM will be considered a significant advantage.

A range of company benefits are available for these posts. Telephone or write now quoting reference W3082.

dp SELECTION SERVICES 7 Swallow Street, London W1R 7HD
"We look forward to hearing from you."
A member of the DP Support Services Group

01-434 2042
(24 hour Ansaphone)

SHERWOOD COMPUTER CENTRE

**ANALYSTS
SENIOR PROGRAMMERS
PROGRAMMERS
JUNIOR PROGRAMMERS**

**TO £12,000
TO £11,000
TO £9,250
TO £8,000**

BE PART OF A DYNAMIC COMPUTER SERVICES COMPANY

We are seeking capable professionals who take pride in their work and who enjoy getting things done. The environment is interesting and challenging and designed to allow those with ability to progress rapidly.

COBOL experience, with a minimum of 18 months - 2 years, is required for the programming positions plus experience of on-line systems would be advantageous. A minimum of 4 years' data processing experience is required for the analyst roles, at least one of which should have been spent in commercial analysis.

For many of these roles exposure to general insurance practices whilst not essential would be advantageous.

Sherwood's Computer hardware is based on two large ICL 2966's and 5 large PRIME mini-computers. It is a highly sophisticated operation with a network approaching 400 local and remote terminals situated in clients' offices.

For over ten years Sherwood Computer Centre has been at the forefront in producing Specialist Computer Systems for the London Insurance market. Our client base now covers a high percentage of the Syndicates at Lloyd's, numerous Insurance Companies, Accountants and Brokers.

The Company is expanding constantly and during the past five years our turnover increased by approximately 60% each year.

Contact Barbara Sargent on Romford 24411 for further information or an application form and company overview. Alternatively your C.V. will be welcomed. Please write to:

**Sherwood Computer Centre Ltd., North House,
9 St. Edwards Way, Romford, Essex. RM1 4AR.**

SCC
Computer
Services
Centre

Analyst Programmers

LONDON W1 up to £12,420

The Logistics and Offshore Management System is a major project within British Gas, designed to provide systems resources for both onshore and offshore activities in the Marescambe and Rough Fields. We currently wish to recruit experienced Analyst Programmers for our London offices.

These are key positions with involvement in all stages of the introduction of a new fully-integrated, interactive computer system - from requirement analysis and design to testing and implementation. You will be part of a project team involved in programming and systems development, using advanced computing techniques on Data General hardware. While based in London the post calls for some travel to hardware sites and occasional visits to offshore installations.

Applicants, male or female, will ideally hold a degree in numerate discipline and have extensive DP and programming experience.

Salary is in the range £10,964 - £12,420 including Inner London Weighting. Benefits are those normally associated with a large progressive organisation.

Please write with full personal and career details, and quoting ref REA/10132/060, to: Assistant Personnel Manager (HQ Services), British Gas, 59 Brynston Street, London W1A 2AZ.

Closing date for applications: 15th March 1984.

BRITISH GAS

BUSINESS ANALYST SYSTEMS ANALYST PROGRAMMER

A large subsidiary company of a leading international engineering group is creating an in-house Systems Department to support a major investment in technology.

Main computer systems, real-time and batch are processed remotely on IBM equipment. On site mini and micro-computers will be used increasingly.

Current and future areas of systems development covering the whole range of the Company's activities, include TOPICS manufacturing systems, CAQ/CAM, Office automation and Financial projects.

The Company is, therefore, seeking experienced and enthusiastic staff to play a significant role in a small, highly skilled team being assembled at this location.

Candidates for the three positions must be able to demonstrate a proven track record ideally gained in an IBM on-line environment developing commercial applications. MVS, CICS/IMS, TSO/SPF, PL/I experience is preferred.

These positions offer competitive salaries, contributory pension scheme, etc.

Please apply in writing, stating age, experience and salary, to:

Personnel Department, B.R.D. Company Limited, P.O. Box 2, Aldridge, Walsall, W69 8DT

(0978)

Technical Programmer

Cementation Construction, a large civil engineering company based in South London, requires a Technical Programmer to strengthen its Management Services team.

Reporting to the Management Services Manager, he or she will be expected to maintain and develop programs utilising the company's already extensive systems, both on mainframe and micro-computers.

Ideally the applicant should have 2-3 years' relevant experience. Experience of 16-bit micro-computers is also desirable. While experience of any particular language is not important, flexibility in the use of differing languages is essential.

The position should suit someone who wishes to broaden his or her expertise in a small but enthusiastic team with, at the same time, the security of a major British group of companies.

Salary is negotiable, according to qualifications and experience, and benefits appropriate to a major organisation.

Please write or telephone for an application form: Cementation Construction

Mr C. J. Rubery, Personnel Manager,
Cementation Construction Limited, Mitcham House,
881 Mitcham Road, Croydon CR9 3AP.
Tel: 01-889 2288 Ext. 2330.

CONTRACTS All these... NOW

IBM

Location

Skills Required

Position

Salary

Benefits

Experience

Education

References

Notes

Comments

Remarks

Details

Further

Information

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Minis/Micros

Location

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PUBLIC SECTOR APPOINTMENTS

The Council is currently introducing a Wang Information Processing System which is being used extensively for word processing with some data processing applications and now needs to be progressively developed to allow for its full potential to benefit the Authority.

To undertake this work we need two highly motivated staff with a professional background in micro-computers and word processing to assume overall responsibility for consolidating the work already done and for the future development of the Wang system. These staff would form part of the Central Computer Development Group which will ultimately report direct to the Chief Executive.

Office Systems Manager (Word Processing)

Grade PO1A Salary £9945 to £11,852 p.a. plus £77 London Weighting

To manage and co-ordinate the Wang Network in relation to word processing, providing advice to Council departments on the use and development of the system. There is also a major priority to identify training needs and implement training programmes for operators and line managers. Ref: C/506

Office Systems Manager (Technical)

Grade PO1B Salary £10539 to £11703 p.a. plus £77 London Weighting

To manage and co-ordinate the Wang Network in relation to its Data Processing capability, including the evaluation of all new applications. To be the centre of competence on all data processing and communications aspects of the system. Undertake as a major priority all staff training associated with data processing and communications matters. Ref: C/507

BRENT IS AN EQUAL OPPORTUNITY EMPLOYER. JOB SHARERS WELCOME

APPLICATION FORMS UNLESS OTHERWISE STATED FROM THE PERSONNEL DIVISION, ROOM 1, BRENT TOWN HALL ANNEXE, KINGS DRIVE, WEMBLEY, MIDDLESEX. RETURNABLE BY MARCH 28th. TEL. 011 837 0371 (24 HOUR ANSWER SERVICE).

REFERENCE NUMBERS MUST BE QUOTED.

London Borough of BRENT

(10240)

BUCKINGHAMSHIRE AYLESBURY COLLEGE OXFORD ROAD AYLESBURY HP21 8PD

Applications are invited from men and women for the following post in the Department of Science in Technology.

LECTURER IN COMPUTER STUDIES/ MATHEMATICS

Applicants should have graduate or professional qualifications, preferably in Computer Science. The courses currently taught include BTEC Diplomas in Computer Studies, GCE 'O' and 'A' level, TEC, BEC, as well as a variety of short courses. A knowledge of modern microprocessor theory and electronics would be an advantage.

Duties to commence September 1, 1984.

Salary: Lecturer £8,640-£9,735.

Assistance with removals and other expenses will be provided in approved cases.

Application forms and further particulars for the above post may be obtained from the Principal upon receipt of a stamped, addressed, self-addressed envelope (to whom completed forms should be returned within 14 days of the appearance of this advertisement).

(10241)

UNIVERSITY OF GLASGOW Computing Service APPLICATIONS PROGRAMMER AND ADVISER

Interested in applications programming, and in helping others with their programming problems? Further certificates of a vacancy, for which the salary is currently in the range from £7,130-£11,616 per annum (full time) for a position w.e.f. 1st April, may be obtained from The Academic Personnel Office, University of Glasgow, Glasgow, G2 8QQ. Closing date for applications: 26th March, 1984.

In reply please quote Ref. No. 5100/2P

(10242)

LUTON COLLEGE OF HIGHER EDUCATION Park Square, Luton, Beds Dept. Maths & Computing

SENIOR LECTURER IN COMPUTING

A Senior Lecturer is required as soon as possible to play a leading role in the development of BTEC Higher National Courses in Computer Studies. Ability to teach Systems Analysis/Data Processing and previous experience in BTEC courses would be an advantage.

Salary: £1,500-£2,000 (12-14).
Details and application forms from: Assistant Director, L255, Park Square, Luton, LU1 3JH. Tel: (0525) 34111 ext. 740. To be returned by March 28th, 1984.

(This C.C. is an equal opportunity employer)

(10190)

POLYTECHNIC OF THE SOUTH BANK Menor House, Clapham Common, SW4 OFFICE TECHNOLOGY UNIT

The Office Technology Unit which exists to provide Open Tech courses in Office Automation requires the following personnel:

SENIOR LECTURERS/LECTURERS

Grade II (Full or part-time) Office environment/Dilca automation. Ref: OT.13

Those courses are for office workers who want to know more about new technology and its effect on their working lives. The course is based on a place of that technology - the BBC micro. This will serve to give students familiarity with the microcomputer and its applications, as well as being a vehicle for computer aided learning. This work cuts across traditional disciplines and Lecturers are required with backgrounds in Information systems, information technology and environmental engineering, with interests in the office, office practice, and new technology. They will be working on the production of distance learning materials using a variety of media particularly text, audio-tape and computer aided learning.

Two full time posts are available as well as part-time contracts for lecturers to work on specific topics.

Salary will be in the range:

Senior Lecturer: £11,870 (x8) - £14,430 p.a. Inclusive of Lecturer, Grade II: £8,202 (x10) - £12,556 p.a. London allowance

Starting salary will be dependent upon qualifications and experience.

PROGRAMMERS

Salary up to c.£9,000 p.a. inclusive of London allowance.

Ref: OT.12

Students will work on their own BBC micro using commercial software and specially produced educational programs.

Two programmers are required to produce computer aided learning packages working in conjunction with teaching staff. Graphics experience and BBC basic essential.

MICROCOMPUTER TECHNICIANS

Salary up to £8,000 p.a. inclusive of London allowance.

Ref: OT.11

Students will be working on BBC microcomputers and much of the program development will be done within the unit. This will include a lot of graphics work.

Two technicians are required to look after the stock of micro and software, to interface machines and peripherals and help in system testing. HND/BSc in electronics or computing preferred although a trainee with micro experience might be considered.

Further details and application form for any of these posts may be obtained by writing to the Staffing Office, enclosing a self-addressed envelope not smaller than 10" x 7" at:

Polytechnic of the South Bank
Borough Road, London SE1 0AA

Closing date for receipt of completed applications will be 30th March, 1984.

(10277)

UNIVERSITY OF LIVERPOOL Department of Computer Science LECTURER

Applications are invited for a post of Lecturer in the Department of Computer Science. Candidates may have research experience in any non-numerical area of Computer Science but applicants with research experience in expert systems, databases or artificial intelligence will be particularly welcome.

Candidates should normally possess a higher degree in Computer Science, or have equivalent industrial or academic experience.

The appointment will commence on 1st May 1984 or a date to be agreed and will be on the scale £7,130-£11,616 p.a.

Applications, together with the names of three referees should be received not later than 28 March, 1984 by The Registrar, The University, P.O. Box 147, Liverpool, L69 3BX, from whom further particulars may be obtained.

Quote Ref: RV/230/CW

(10213)

UNIVERSITY OF READING COMPUTER CENTRE SYSTEMS PROGRAMMER

A Systems Programmer is required to join the group developing and maintaining systems software within the Computing Service. The Centre operates an Amdahl V7A, running VM/CMS and UTS and a range of IBM mainframes, plus an extensive 226 campus wide network. The Programmer's main duties will be in the VM/CMS group and familiarity with this or another IBM system would be an advantage. Applicants should possess a degree and relevant computer experience. The post is a permanent one on either Grade LA (£7,130-£11,616 p.a.) or Grade LB (£11,664-£14,126 p.a.) according to experience. The post carries USG supervision. Applicants should send a curriculum vitae, together with three referees' names, to the Registrar, The University, P.O. Box 147, Liverpool, L69 3BX, from whom further particulars may be obtained.

Quote Ref: RV/230/CW

(10213)

YORKSHIRE REGIONAL HEALTH AUTHORITY REGIONAL COMPUTER CENTRE - HARROGATE

The Regional Computer Centre provides a comprehensive service to users in 17 Health Authorities and has a number of vacancies for qualified and experienced staff. A new computer centre is in operation working on an ICL 2988 with extensive communications capabilities together with various makes of micro/minis.

The computer applications cover a wide range of activities including medical, hospital administration and financial control, all of which may be provided on the above hardware.

Systems Designer/ Programmer (Scale 4)

A number of posts are required to be filled at the above level by applicants with a sound educational background together with two or more years' practical design experience, excluding training.

Formal training in Systems Design and/or Programming is required and applicants must have proven capabilities to design and/or program major programs or sections of systems. A good knowledge of large mainframes, mini or micro computers will also be necessary together with experience of structure design methods which are used in all areas of work.

Salary scale £7,404-£9,025 p.a.

Applications for posts should be sent to the Regional Health Authority, Park Parade, Harrogate HG1 5AH.

Please quote Reference Number AC 98
Closing date: March 28, 1984

(10240)

GLC

Working for London

Systems development for a vital emergency service

Team Leader London Fire Brigade

As a department of the GLC, the London Fire Brigade is a major user of the Council's massive IBM mainframe facility. It is also rapidly developing highly sophisticated local systems, utilising personal computers and advanced software, for its 11 Divisional Offices controlling 114 fire stations.

This challenging new post has been created in direct response to this dynamic increase in computerisation and as such, provides an exceptionally stimulating opportunity for a talented analyst/programmer with at least 2 years' professional experience in local government or other relevant computing environment and a working knowledge of IBM OS and ADABAS NATURAL.

Responsibilities will entail heading a small team in the development, co-ordination and progress of new systems and the maintenance and enhancement of existing facilities, providing interface and technical support to users within the Fire Brigade. There will be scope for involvement at all stages, from problem assessment to implementation. Contributing to the evaluation of hardware and software will be an essential part of the work.

A high degree of initiative is called for, together with good communication skills and a sound knowledge of personal computing techniques. This post is suitable for job sharing.

Salary: £8,685-£13,935 inclusive.

For an application form, to be returned by 23rd March 1984, write to: Personnel Section, London Fire Brigade Headquarters, Albert Embankment, SE1 7SD or telephone 01-735 4854.

The GLC welcomes applicants from all sections of the community, irrespective of their sex, ethnic origin, colour, sexual orientation or disability, if they have the necessary attributes to do the job.

The GLC is an equal opportunities employer.

UNIVERSITY OF LIVERPOOL Computer Laboratory SENIOR PROGRAMMER/ANALYST

Applications are sought for a post in the Administrative Computing Section with special responsibility for the specification, development and implementation of computer systems for the Building Services Department. The department has responsibility for the management of the University estate, maintenance of buildings, mechanical and electrical plant, and energy control associated with a large institution. Initial developments will utilise codeyl database techniques on modern transaction processing system (Honeywell DPS7), but future developments will incorporate distributed systems, including microcomputers. Successful candidates will become part of a large team of programmer/analysts which support both administrative and academic computing services on a wide range of machines, including IBM, ICL, DEC and Honeywell.

Candidates should be graduates, and experienced in the use of codeyl databases, Cobol, knowledge of Fortran an advantage.

Salary in range £9,875-£11,616 p.a.

Application forms may be obtained from The Registrar, The University, P.O. Box 147, Liverpool L69 3BX. Quote Ref: RV/230/CW.

(10200)

SOCIAL & COMMUNITY PLANNING RESEARCH PROGRAMMER

SCPR, an independent social research institute requires a programmer to join a team concerned with the processing and analysis of data from a series of individual research studies, and with the development of a variety of related and general applications.

The Institute has links to an external VAX computer running UNIX, but an increasing number of applications are being developed to run on in-house microcomputers.

A sound computer background, adaptability and the ability to communicate with non-computer staff are essential for the job. Experience in handling survey data would be a distinct advantage.

Salary in the range £7-10,000 according to experience and qualifications.

Please write or telephone to obtain further details and an application form to the Data Processing Officer.

35 Northampton Square, London EC1V 0AX. 01-250 1868

(10170)

NORTHERN IRELAND HOUSING EXECUTIVE

Housing Executive

COMPUTER SERVICES CO-ORDINATOR

Ref. No. 38/2761

SALARY SCALE £18,899/£18,534 per annum

LOCATION: Based in Belfast

The Northern Ireland Housing Executive is the largest Housing Authority in the UK, and provides a comprehensive service through a central and regional structure to both the Public and Private Sectors. In its attempt to improve housing and social conditions within the Province.

As part of its policy to improve services at all levels, the Housing Executive has developed a computer strategy which will involve the extension of computer facilities into many of its operations.

We are therefore seeking to recruit a suitably qualified professional to co-ordinate the duties:

The Computer Services Co-ordinator will be responsible to the Director of Personnel and Management for the provision of a comprehensive computer service including communications, microcomputer applications, both hardware and software, throughout the Executive.

Applicants must hold a relevant degree or an equivalent technical qualification and be able to demonstrate extensive computer experience in a number of areas with sound IBM mainframe experience on OS or DOS/V systems. A previous programming background in ASSEMBLER would be desirable as is proven supervisory or management experience.

Application forms and further details may be obtained from The Head of Personnel and Management, Northern Ireland Housing Executive, The Housing Centre, 2 Ardara Road, Belfast BT2 8PQ.

Telephone: Belfast 240886. Fax: 2306 2118.

Completed Application Forms should reach the above address not later than Friday, March 23rd, 1984.

Please quote reference number:

The Checkout Company offers its customers a complete service in providing hardware, software and maintenance on all the products it supplies.

The products and services developed by Checkout cover a wide range of computer related projects in commercial, industrial and service related fields.

We are a young company and as a result of being awarded a large contract we are recruiting the following personnel:

ELECTRONIC SYSTEM DESIGNERS

With microprocessor and system design experience to spearhead exciting new developments undertaken by Checkout in the computer systems field.

SYSTEM TROUBLESHOOTERS

To lead an expanding team of field support personnel. Field service managerial experience is essential, along with a good hardware and software knowledge in the mini and micro fields.

FIELD SERVICE ENGINEERS

Experience in sophisticated integrated point of sale network environments would be an advantage.

If you are interested and are looking for a rewarding and challenging career with all the benefits a rapidly expanding company has to offer please write with full C.V. to:

Mr H. Chalacha
Checkout Computer Systems Limited
Trimoco House
2 Victoria Street
LUTON
Beds

(CHECKOUT
(10278)

Marconi Space and Defence Systems is a leading company in the design, development and manufacture of a wide range of high technology systems and equipment for civil defence and aerospace markets. We have the following vacancies in the Business Systems Department of the Broad Oak Works

SYSTEMS & PROGRAMMING MANAGER

Responsible to the Business Systems Manager for a D/P staff of eight who are currently engaged in the early stages of implementing a major on-line integrated manufacturing/costing system. The Systems & Programming Manager will be educated to degree standard and will have at least 3 years' managerial experience in a manufacturing environment.

The successful candidate will be able to demonstrate systems and data base design and implementation success, preferably on IBM Mainframes using DLI/IMS, and will be responsible for the development and support of existing and future bespoke applications to enhance and complement the system.

PROGRAMMER 1

A minimum of 1 year's Cobol experience on IBM Mainframe running under OS and IMS/DC or CICS

is necessary for this position. Reporting to the Senior Programmer, duties will include Programme coding, testing and documentation to standards defined by the company. A knowledge of CMS, TSO, RAIMS, FILETAB or DLI/1 would be an advantage.

ANALYST PROGRAMMER

Reporting to the Senior Systems Analyst, duties involve all aspects of programming on both existing and new systems; analysis, design, specification and implementation of systems necessary for the enhancement of a major on-line integrated manufacturing and costing package.

A minimum of 3 years' solid Programming/Systems experience (in a manufacturing environment) on IBM Mainframe using IMS/DC, DLI/1 is required with education to at least 'A' level.

Attractive salaries and benefits packages commensurate with the levels of position are offered, together with relocation assistance where appropriate.

Please apply in writing with full c.v. including current salary, to Averil Jakeman, Marconi Space and Defence Systems Limited, Broad Oak Works, The Airport, Portsmouth, Hants PO3 5PQ or telephone 0705 664966 ext. 4217 for an application form.

Marconi
Space & Defence Systems



(10230)

مركزنا من اجل

COMPUVAC

COBOL PROGRAMMERS

We currently have a large number of openings for COBOL Programmers. Ideally you will have worked on IBM mainframes for at least one year and have some knowledge of software, especially CICS and DLI or IMS. Vacancies exist in and around London.

TO £12,000

REF: LD/CW

PL1 PROGRAMMERS

A number of clients based in London and the Home Counties are looking for PL1 Programmers at all levels. Any experience of CICS or IMS would be advantageous but not mandatory and most opportunities offer a good career path into Senior Programmer and Analyst positions.

TO £11,500

REF: LD/CW

ANALYST PROGRAMMERS

Our client based to the South West of London is urgently seeking Analyst Programmers with a good knowledge of COBOL or PL1 on MVS or DDS systems. You should also have experience of on-line systems working from feasibility through to implementation.

TO £14,000

REF: LD/CW

SYSTEMS PROGRAMMERS

Based in the London area, our clients are looking for experienced people with a sound knowledge of DOS, VM or MVS systems. Applicants must have experience of some of the following: CICS, ACF, VTAM, DLI, IMS, TSO, SNA. A number of the positions include generous benefits packages.

TO £19,000

REF: RC/CW

SYSTEMS ANALYSTS

Candidates should have up to five years' experience in Analysis and would have seen a major project from feasibility through to implementation. You should possess good communication and supervisory skills and preferably have worked on the database side. Positions are based in Home Counties and London.

TO £15,000

REF: RC/CW

IBM CONSULTANCIES

A large software house based in Central London are looking to recruit senior data processing personnel in a number of areas with sound IBM mainframe experience on OS or DOS/V systems. A previous programming background in ASSEMBLER would be desirable as is proven supervisory or management experience.

TO £20,000

REF: RC/CW

SYSTEMS DESIGNERS

A number of clients in Greater London are looking for Systems Designers with at least two years' experience in Analysis and Design. Applicants should have good user communication skills and have project control and implementation experience. A programming background is preferred, especially at senior levels as the positions are more technical than business oriented.

TO £13,000

REF: CC/CW

RPG3 PROGRAMMERS

Vacancies exist in all areas including banks for experienced System 38 professionals. Job duties range from reviews for conversions to training in financial analysis. Minimum of one year's RPG3 experience.

TO £14,000

REF: MB/CW

GSD CONSULTANCIES

Three progressive, expanding software houses all based in the Greater London area have requirements for confident RPG professionals with good oral and written communication skills for consultancy roles. Previous software house experience an advantage but not essential.

TO £20,000

REF: MB/CW

UNIVAC 1100

Demand for 1100 professionals is currently very high with positions all over the Greater London area but particularly in the Northern Home Counties. Any T.P. or Database experience would be advantageous.

TO £14,500

REF: CC/RW

IDMS/TPMS PROFESSIONALS

A minimum of one year's experience of IDMS or TPMS coupled with a sound ICL COBOL background can secure you a career move well worth taking. Standards are high but so are the rewards. If you feel you can fill the bill, call now!

TO £15,000

REF: CC/CW

HONEYWELL COBOL

Level 64 or 86 experience is required by our client for roles as Programmer or Analyst/Programmer on development projects. Experience of at least one of the following preferred: DMV, IDS, TDS.

TO £15,000

REF: CC/CW



JOB IN THE MIDLANDS

Industrial heart is beating faster

Big firms in the Midlands are stepping up recruitment, says Nigel Whitnall

FOR those thinking about a job in the Midlands, now is the time to try. The big firms are beginning to burst off the dust of the recession and are gradually stepping up recruitment, but they still prefer home-and-bred Midlandsers.

Some companies are looking only for staff with at least 18 months' experience, others only for trainees, but generally the Midlands computer scene is stirring in a buzz again.

Midlands industry is dominated by manufacturing. British Leyland, including its DAF offshoot (formerly ILL Systems), and Baxi Churniton are major computer staff recruiters, although the largest computer staff is at Kalamazoo, which employs some 400 people.

"Over the last nine months,

firms have taken on people they really needed two years ago," says Lorraine Taylor, of consultancy Knight Programming Support.

"Before that, many companies had self-imposed bans on recruitment. Salaries were held down because there was a mountain of experienced staff and not enough jobs to go round."

"Now there are a lot more vacancies, but still quite a few people going for them. Midlands companies have a good selection."

On the programming side, salaries are on the low side (see Table 1). Minimum experience required is usually 18 months', and IBM experience in particular.

More specifically, experience on the IBM 34 up to the 38, and with RPG 2 and 3, is advantageous.

At ICL installations, VME ex-

perience is usually required. The other prominent hardware used in the Midlands is Univac - combined with "good Cobol experience". On other hardware, firms are fairly eclectic in their tastes.

The last nine months have seen more staff flow in and out of the Midlands. "People have actually been coming from London to us," says Taylor, "although they often have to take a £1,000-£2,000 drop in salary."

"One woman who was working for a software company in London dropped from £10,250 to £8,750 when she moved to the Midlands," she adds.

Midlanders are now happy to move away to areas such as the Home Counties, Shropshire and Worcestershire, where generally the property is better and wages higher.

For graduates aiming to enter programming, the outlook is not bright. Most agencies will not take on graduates, and only the large firms such as ICL and Lucas have a steady intake. Most graduates go to London for their first job.

Midlands salaries for operators are generally good as can be seen in Table 2 as much as £2,000 higher than comparative salaries in Manchester or Stoke. A lot of operators move into the Midlands, and so average requirement would be for 18 months' IBM experience.

ICL firms will recruit only

operators who have already worked on ICL equipment.

"ICL firms have made a lot of redundancies recently. There are a lot of ICL people on the market at the moment," comments Manners-Fenton.

Government-connected bodies seem to have come out of the recession better than their commercial counterparts. The City of Birmingham Computer Centre, for

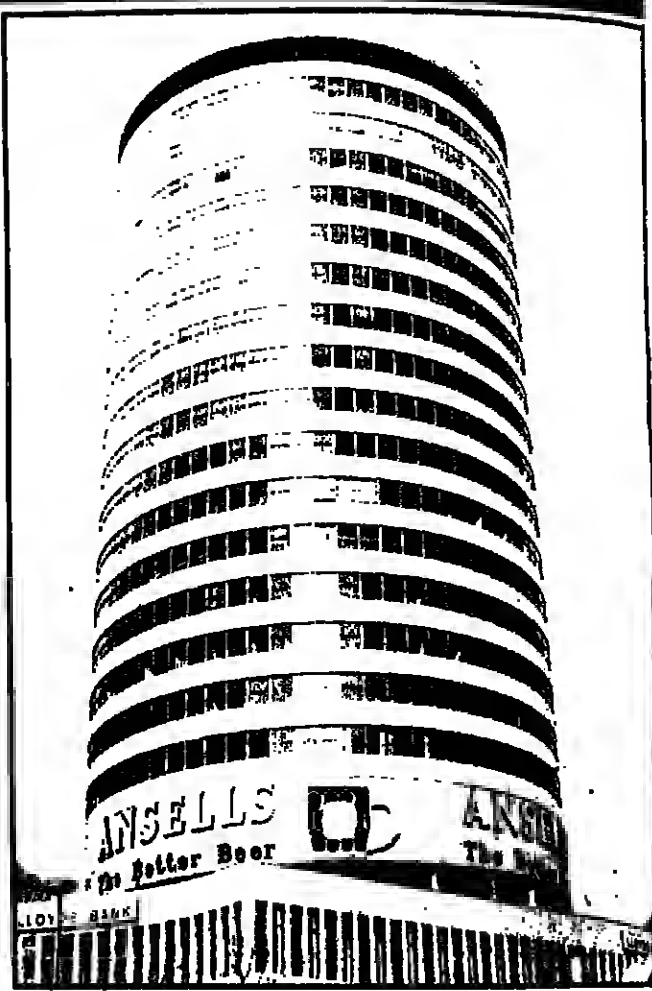
Midlands salaries for operators are generally good - as much as £2,000 higher than comparative salaries in Manchester or Stoke

example, run by the Metropolitan District Council, is showing healthy expansion.

"Requirements have been growing in Birmingham," says a spokesman. "We haven't really been affected by the recession. We were expanding all through last year, mainly on the development side."

The Centre recruits between six and 12 experienced trainees a year. Minimum experience required is usually about three years' on the type of job being applied for.

"Over the last two years we've



The Birmingham Rotunda - heart of Britain's second city.

tended to recruit more Tops people than graduates," says the spokesman, who envisages a "steady increase" in jobs available.

Midlands Electricity, thanks to a union agreement, has had a firm policy of "trainees only" for the last eight years. And the majority of trainees are local graduates. Experienced staff applying from outside automatically placed on the minimum salary for the grade.

A spokesman claims that the company has not been affected by the recession, rather it has "helped to reduce turnover on the systems side". The company is currently recruiting about four people a year.

On the commercial side, Baxi Computer Services' recruitment is "fairly static", according to personnel manager Brian Phillips. The company generally prefer graduate trainees to people with experience.

Phillips is strictly selective about his recruitment at all levels. "About 20% of people who send in curriculum vitae get interviews," he says. "Of those, we take on every 10."

MIDLANDS FEATURE

Would you like to join a Winning Team?

Top Salaries — Top Sales Commissions — Top Systems & Programming Salaries
Pick the Job For You — Up to £50,000!!!!

Honeywell & ICL clients

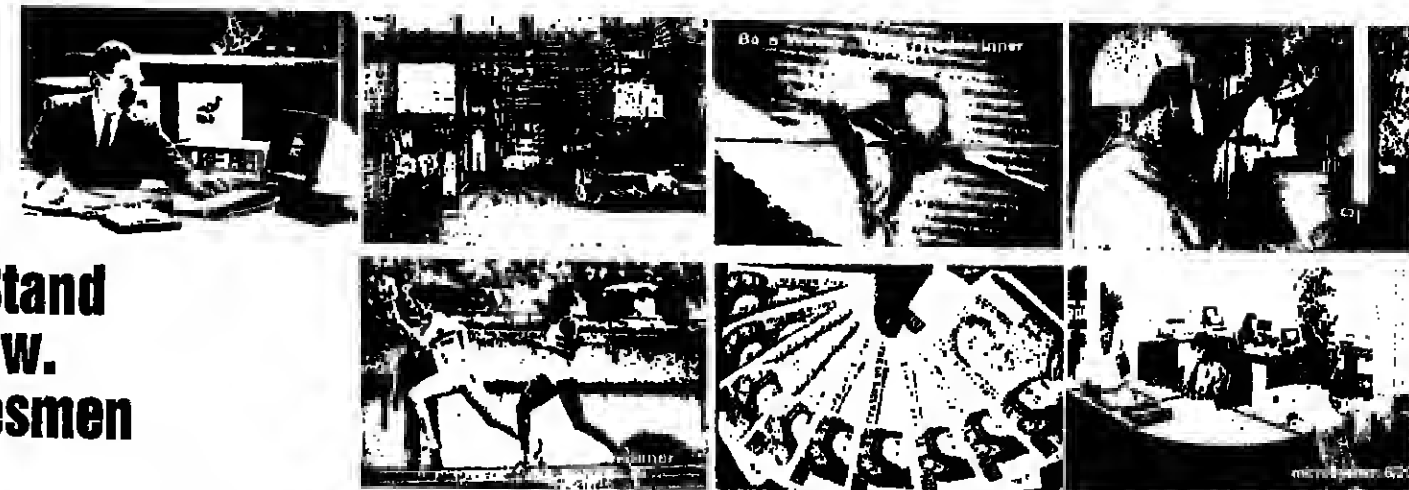
The best Minis in the UK. Top New Micros. Customer enquiries unrivalled anywhere.

The Top System Builder Stand at Which Computer? Show. Sales Managers & Salesmen to £50,000 pa.

Project Leaders and Managers to £14,000 pa.

Analyst Programmers to £10,000 plus early promotion.

Our clients include Manufacturers — Distributors, Stockists, Oil Companies, Vehicle Leasing etc, etc, etc.



PACKAGE DEMONSTRATIONS MANAGER

Attractive Salary + Bonus

We are urgently seeking a Project Manager level Project Presenter with a sound understanding of the majority of the distributive and possibly manufacturing systems facilities incorporated within a totally integrated system environment. Candidates must show a comprehensive understanding of Order Processing, Stock Control, Purchase Ordering, Ledgers and possibly through to Payroll. We are seeking a high calibre candidate capable of giving regular detailed package demonstrations at our Science Park Centre during the course of each week and equally making occasional trips to undertake the same demonstrations in clients' centres throughout the UK.

The successful candidate will be aged a minimum 28 and have been in a Project Leadership/Project Management role for a minimum two years in data. Past experience at some point of at least two years' COBOL programming is mandatory, with preference for having worked on a major manufacturing system. The ability to present using a terminal and a series of main driven screens as part of a daily presentation technique is essential, as is a high level of communication ability. We equally need individuals who are capable of rapidly assimilating a prospective client's individual requirements and identifying any deviations from the established packages, recording and estimating content accordingly.

Equally, it is important to have the personality trait and character to work for long periods without close management supervision and the flexibility of mind to address the many variations of customer proposals, attempting to use the basic modules of the package, enhancing individual features as their companies or services deem it necessary. As part of the task, we envisage you cataloguing, defining and recommending appropriate enhancements constantly within the overall reliability of the package products themselves on a marketing advisory basis. Equally, you should have the skills and abilities to specify the necessary enhancement changes, the application system development area under the control of alternative managers and directors.

This task will report primarily to a marketing directorate and plays a major part in supporting a dynamic sales effort throughout the company. Ability to project at a high professional level, constantly and sometimes repetitively, is very important.

Equally, the role will involve training users in the use of the said packages both in-house at our Science Park Data Centre and occasionally away at client premises. A driving licence is essential and past experience in a marketing support activity, or perhaps even commercial lecturing/academic environment may well be advantageous. This represents a new and challenging role within a rapidly expanding young organisation set on the outskirts of the University campus. We have already successfully gained a significant number of clients throughout the UK in many diverse UK industries. It offers excellent career prospects for the right quality of individual. Apply Initially John Wood - Telephone No. 021-359 9854.

SYSTEMS PROGRAMMER

Attractive Salary

We seek experienced Systems Programmers, preferably with Assembly language knowledge and possible Fortran, on either ICL or Honeywell hardware. Equally, a good knowledge of JCL and operating system development in general would be required. The successful candidate will be involved in a multiple hardware environment involving stand-alone and network mini and microcomputer systems with client tasks involved, offering an interesting and absorbing job opportunity. We have built our own system: Screen Format, COBOL Editing and Data Management Systems in-house. Equally a number of additional software products are being considered for future development, especially in the area of networking and interfacing.

For initial discussions contact Geoff Caine.

ANALYST/PROGRAMMERS

£8,000 to £10,000

Have you had at least three years' programming experience? Have you had COBOL experience? Do you know about Sales Order Processing? Stock Control? Purchase Order Processing? Have you used Honeywell or ICL equipment? Are you eager to develop new skills? Do you want to broaden your horizons? Do you want technical challenge? Do you want contact with your clients? Can you meet your own committed timescale? Do you enjoy working in a professional environment? Do you want the reward that you think you deserve? If you have answered YES to most of these questions, then we have got a lot to offer each other. Contact us, NOW. Bob Tait or Jeff Forrester.

SYSTEMS PROGRAMMER

ICL ME29/2904

We urgently require an experienced, accomplished Systems Programmer able to support complex package system and client custom built system development requirements. Experience of JCL for TME would be advantageous, as would any plan experience. Occasional visits to client sites throughout the UK will be involved. We offer good working conditions in a lively modern environment within a new developing unit of the Aston Science Park, Central Birmingham.

For initial interviews and discussions contact Geoff Caine - Projects Director.

TERMINAL SYSTEMS SALESMEN

Top Salaries + Commission + Car

We are seeking experienced Video Salesmen with a proven track record of selling into a major manufacturer base. We currently have a number of offerings with a high selling customer response already generated. Salesmen applying should have a sound working knowledge of applications systems and leading edge products, with an attractive salary and being able to interpret the output of a design would be especially attractive, although not essential. Essentially, candidates must have a minimum two years' current and previous terminal sales experience and be able to demonstrate direct sales achievements of at least £200,000 p.a. Full UK variable customer opportunities are available with no restrictions on territories and a large number of viable leads already generated by the marketing activities of the group. A company car will be supplied, with an attractive salary and good variable commission system. We envisage candidates realistically earning £20,000 to £35,000. Management progression opportunities are also available and concessional share options at a later stage. Candidates will essentially live or be prepared to re-locate to a reasonable radius of our Midlands base. For initial discussions contact John Wood.

TURNKEY SYSTEMS SALESMAN

Top Salary + Commission + Car

Our rapidly expanding Turnkey Systems Group, with a successful sales track record, having penetrated a large and growing number of national organisations throughout the entire UK, is seeking to build an accomplished sales team based initially throughout the Midlands but with extensive national coverage duties. We are seeking proven top school salesmen. As such, candidates must have a minimum three years' in microcomputer sales, preferably in a distributive or manufacturing environment. A reasonable working knowledge of Application Systems is required in order to maintain a meaningful rapport at senior executive level, albeit whenever supported extensively by a top level design team. The ability to rapidly close deals in a highly competitive commercial environment is absolutely critical. We in turn offer you a level of package products in integrated system design which will virtually ensure a success against competitive products in the market place. We offer expatriate salaries ranging from low cost entry level micros up to the top end of the microcomputer range with a price ratio ranging from £5,000 to £25,000.

Equally, our policy is to generate a large volume of leads which traditionally have been supported by Project Management and Support Directors. Sound career development opportunities are available for proven successful candidates who can contribute towards a significant increase in market penetration and sales within their first two years with the company. Attractive commission rates are available with an excellent quality of leads constantly being generated for you to concentrate on selling on. We invest on a major scale at key exhibitions such as the Which Computer Show and are assessing new policies related to other trade shows in the distributive products area. Candidates should be capable of preparing a high quality Management Overview and Case Summary and have the ability to present a sound Business Systems case, emphasising the competitive advantages in business side for the prospective client.

Equally, candidates should have experience of using visual aids and be competent in developing suitable formats to fit individual scenarios. Target earnings will realistically be between £20,000 and £35,000 and are totally attainable. Groups does exist for top high flying new business salesmen with the emphasis upon new business and no out-of-office or preparing a high quality Management Overview and Case Summary and have the ability to present a sound Business Systems case, emphasising the competitive advantages in business side for the prospective client.

Network sales are available and, in fact, evidence exists of in-house Projects Managers achieving over £250,000 of sales per annum on a part-time basis to assist the company. What, therefore, can skilled accomplished salesmen anticipate. In turn, we have an outstanding level of documentation, extensive brochures and selling aids and a high quality level of terminal driven package demonstration systems. Good references also exist throughout the UK, often in turn generating even further business. We work with major manufacturers equipment, including Honeywell and ICL. Development and sales taking place with leading Japanese manufacturers. Salesmen on average receive 10 good quality leads per month to address. Respond for initial meetings and interviews to Bob Tait or John Wood - Telephone No. 021-359 9854.

MS/DOS SYSTEMS DESIGNERS

We urgently seek top experienced Systems Designers with a sound understanding of MS/DOS, able to work on the development of fully integrated microcomputer business systems using future release MS/DOS operating systems. A sound understanding of business applications ranging from order processing through stock and into ledgers will be important. The ability to design, set up a project control system, project planning and manage will be critical and fundamental to the success of the task. A successful career history will need to be demonstrated. Essentially you will have designed and developed at least two major systems and be able to demonstrate your expertise in the area of MS/DOS systems development to date. Candidates less than 25 years of age are unlikely to be considered. A very attractive package is available including company car and future equality opportunities. Our clients will involve a number of leading American and Japanese manufacturers, offering significant opportunities for future expansion. We equally offer rapid career expansion opportunity for top candidates in a public company subsidiary. For initial consultation please send a cv and contact John Wood.

Automotive Products

An independent group of companies, primarily engaged in the manufacture and distribution of motor vehicle components, (e.g. Borg and Beck Clutch, Lockheed Brake Systems etc). Automotive Products is a world wide organisation with a strong UK base, largely centred in the Midlands. The Automotive division, Banbury is the hub of the company's replacement parts operation and is one of the largest specialist vehicle component sites in Europe.

The town of Banbury is rapidly expanding into a thriving commercial centre but still retains much of its old market town atmosphere. Situated on the edge of the Cotswolds, Banbury and the surrounding villages provide a pleasant environment in which to live. A number of opportunities now exist in our Computer/Systems Departments.

The installation comprises a twin IBM 4341 configuration with 8 MB of storage each, 16 x 3370 disks, 4 x 3420 tapes and a network of approximately 200 terminals located in Banbury and around the country. Production systems are based on COBOL and MSA application packages, running under CICS/DL1 and DOS/VSE. Development and personal computing facilities are provided by VM/CMS.

We have vacancies for:

SYSTEMS PROGRAMMERS

DOS: with 3 or more years experience in maintaining DOS system with knowledge of POWER, CICS, DL1 and VSAM.

VM: with 3 or more years experience in maintaining VM system. A knowledge of APL would be advantageous.

Communications - with 3 or more years experience of maintaining a SNA communications network using VTAM and NCP.

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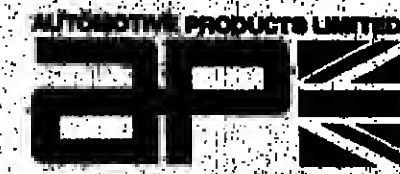
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For further information, and/or application form, please contact David Barrie, Computer Services Manager, or Colin Rodds, Personnel Controller at Automotive Products plc, Automotive Division, P.O. Box 14, Southam Road, Banbury, OX15 7QX. Telephone Banbury (0295) 4421.



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SALES BIT Quality of Management - 86

How to identify the losers in your team

If a note of cynicism creeps in this week, it is because most of the column is written from a number of personal experiences over the year that have affected my absolute belief in my species. The subject is losers - those people who are always able to snatch defeat from the jaws of victory; those who inevitably fail you, the sales team and themselves for reasons that are often socially and ethically unacceptable.

They can come in a variety of forms from the basically inept, through layabouts, freeloaders, cheaters, liars, rogues, in outright criminals. But these labels are invariably applied after the event with the help of hindsight.

What's more, those are regretfully a replacement of earlier labels that could initially have described the person concerned with an array of superlatives from "obvious potential" to "high flyer/super hero in need of a change".

As a "rule of thumb", the experienced recruitment consultant is just as likely to get it wrong as the

delivery and the like. He is never a failure to himself; it is merely that fates are giving him a bad time.

Unconvincing Expenses: Basically, dishonest losers always make expense claims that do not fall into the common pattern of the rest of the sales force. Their cars always use more petrol than those of their colleagues, they always get involved in more of those expenses for which one does not normally get a receipt, they lost receipts, they have lots of receipts from the same garage in the same (and often familiar) writing.

Bad communicators: Good communications is bad news for people with something to hide. Losers usually produce sketchy and inconsistent call reports, if they produce them at all.

Excuses, Excuses: Losers usually have a vivid imagination: they need it to prolong survival. They are never lost for elaborate excuses whatever the situation.

Dust Raisers: Life is always hectic, pushing around "seeing people" usually straight from home or on the way home, making lots of phone calls, writing lots of letters, lots of "working

A growing business like the computer industry gives a lot of scope for "guarantee hoppers" and other types of losers. Sales managers must constantly be on the look-out for such people

manager for whom he is working. The reason is simple: there are no fail-safe techniques for identifying and qualifying basic human characteristics, like industry, integrity and common sense. Consequently, it would be a mistake to rely absolutely on the judgement of external recruitment consultants. The only way to establish the true nature of such qualities is by extended personal exposure. As my mum is always telling me: "You don't know people until you live with them".

It is a source of continuing astonishment to me that very few companies go to the trouble of thoroughly reference-checking potential employees. When faced with such dereliction of duty, the most common excuse is that "the only pertinent reference is the applicant's current boss and one cannot reasonably approach him while he is still in that employment."

But why not make the job offer subject to satisfactory references from his present employer once the job has been taken up? Clearly, any candidate objecting to such an arrangement is likely to be hiding something, and is best avoided.

If the chances of selecting the wrong people are significant, it is likely that at any given time you have in your team at least one "loser". The trouble is, how to identify them.

As far as I am concerned there are two kinds: honest and dishonest. While both have many symptoms in common, those of the latter group are usually the more difficult to identify.

Here are a few characteristics to watch out for:

Suspicious Absence. On occasions, the employee simply fails to show up for work. No forewarning or even any contact at all - he simply disappears. If he does call, the reason is usually something to do with ill-health. Typically, when he does report for duty, his excuse is either very elaborate or extremely lame.

Continual Bad Luck: Success managers constantly to elude them. The "competition" offers dramatic discounts, special features, faster

lunches". Sadly, all this work sedition, if ever, generates any business.

Personal Problems: We all have personal problems from time to time, but the loser has more than his share. It's not his fault of course, but his wife, or kids, win are dragging him down. So, he really has to spend lots of time sorting it out, or taking the kids to school, and so on.

The list of possible symptoms is endless and many of them are not unique to malingers and scroungers. What is special to the loser is that he always has at least one of them running at any given time.

In my experience one's "gut feel" is always right. If you suspect one of your subordinates is cheating, it's almost certain he is. Invariably, your discovery that a note of suspicion are but the tip of an iceberg of dishonesty in one manifestation or another. So, act early for delay may allow the problem to drift beyond the company to your clients, putting your hard-earned professional credibility at risk.

Don't allow your judgment to be over-ruled by tolerance, understanding and altruism for that is the basic sustenance of the loser.

Unfortunately, a growing business like the computer industry gives a lot of scope for "guarantee hoppers" and other types of losers. Sales managers must constantly be on the lookout for such people because the price of failing to identify them can be very high.

Thorough and pertinent reference checking is about as near as you'll come to preventing losers getting on board in the first place, but don't imagine they'll never get into your team - because they will.

So keep on the lookout.

Alan Williams

PUZZLE ANSWER

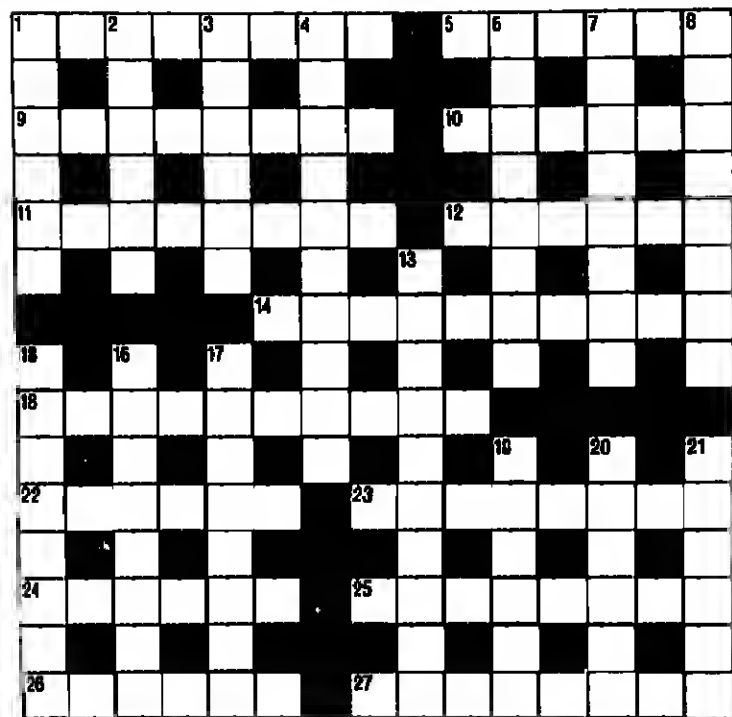
THE three races of progress are uphill 2.1sec, downhill 3.1sec, on the level 3.1sec.

CROSSWORD

Prize Crossword No 50

Compiled by Alec Robins

A prize of £10 will be awarded for the first correct entry opened. The second and third solutions opened will receive £5 each. Entries to Crossword Competition, Computer Weekly, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS, by first post Friday, March 16. Please use a ballpoint pen to complete the crossword, and include a telephone number at which you can be reached during the daytime.



Name (Miss, Mrs, Ms, Mr)

Address

Telephone

I accept the rules and conditions of the Computer Weekly Crossword Competition.

Signed Date

ACROSS

- 1 Shrug indifferently about ancient dash to stake claims (4-4)
- 5 Dined, tucking into fish, having a protective cover (6)
- 9 Kettle used, oddly, by doir clan (8)
- 10 Idiot's expelled from class by a min, a man of the cloth (6)
- 11 Control speed, holding toboggan back (8)
- 12 Joined by treaty, recovered after losing leader (6)
- 14 Albert, perhaps, has to keep an eye on the tea at home (5-5)
- 18 It's not a good sign to dwell in retirement under canvas (4, 6)
- 22 One who digs, beginning to daintier a young wriggler (6)
- 23 Girl showing anxiety about money lion (8)
- 24 Embroid, at a Cambridgeshire town, very much (6)
- 25 Seeker of custom grabs one, blushing and weary (5, 3)
- 26 Clothes worn by widow? (6)
- 27 To abandon an executive plane, for example, is not unusual (8)

DOWN

- 1 Child's carriage in which an engaging tooth is lifted with skill (2-4)
- 2 To loll and be thrushful about nothing (6)
- 3 A flat iron plate with no top? It's puzzling (6)
- 4 Abbreviated garments causing gasps (5, 5)
- 6 Silo specially constructed to beat a source of pollution (3-5)
- 7 Final part of school year in almost everything (8)
- 8 Degenerate rotter, ducked in river, out disheartened (8)
- 13 Scrutinise naughty ladies, getting shock (10)
- 15 Expert marksman of French commercials, passionate (4-4)
- 16 Governance that's proper about one acquitting a record (8)
- 17 Defamed and made false statements about a beauty endlessly (8)
- 19 Powerful vessel about to catch up (6)
- 20 Spots about four loose pieces of turf (6)
- 21 Unit of force, modern, having great weight (6)

RULES AND CONDITIONS

1. Each competitor may submit no more than one entry.
2. The competition is open to all readers of Computer Weekly with the exception of the staff of Business Press International Ltd, any printers employed by them or the near relatives of any such staff.
3. The solution of each puzzle will normally be published in the issue three weeks after the puzzle has been published.
4. Winners will receive their prizes during the month following the competition.
5. The decision of the editor on the interpretation of the rules and conditions and on all matters shall be final. No correspondence will be entered into.

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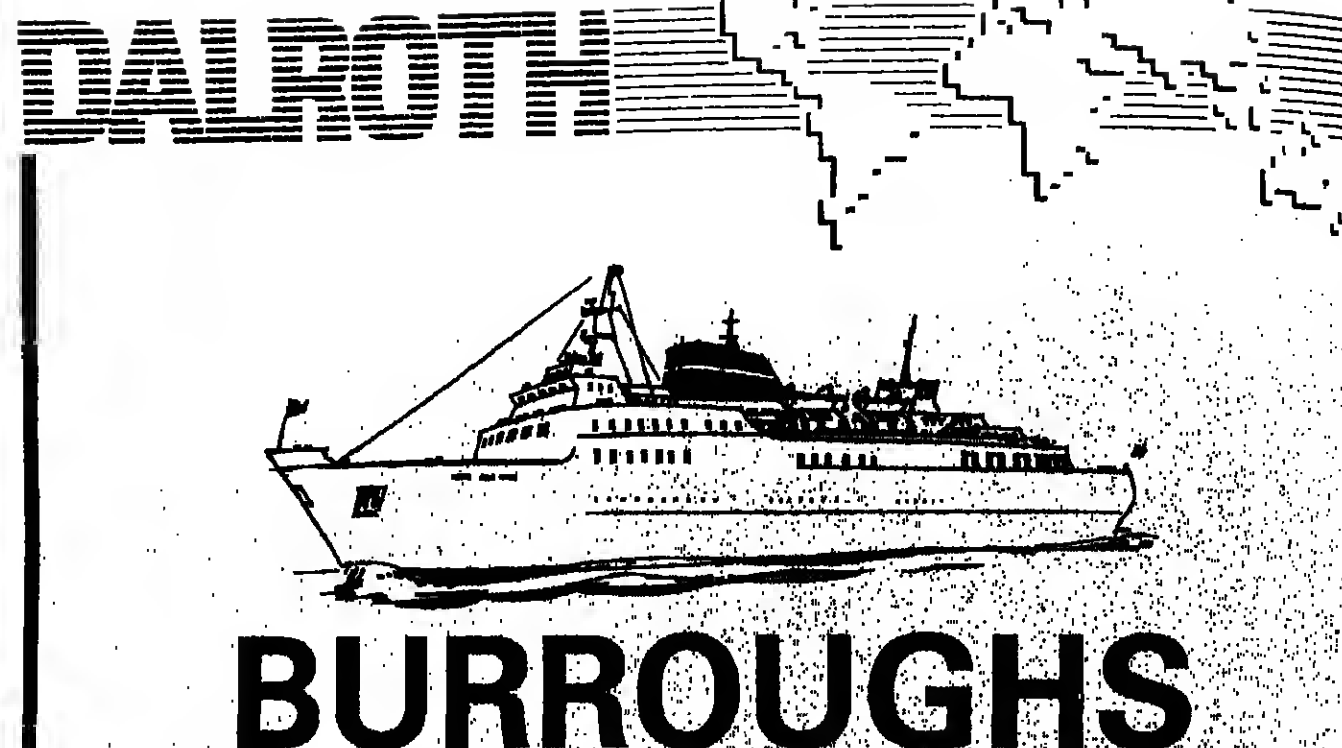
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